















# Fish technology newsletter

Vol. II No. 1 July 1979



( Left to right ) S/Shri. M. R. Nair, Joint Director, CIFT, L. Luis, Chittumala Block Development Officer, Dr. Abdul Kahar, Kundara Veterinary Surgeon and P. V. Prabhu, Scientist.

( Report on Page - 4 )



CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY  
MATSYAPURI P. O.  
COCHIN - 682 029



## CONTENTS

	Page
1. Foreword	3
2. Lab - to - Land programme	4
3. Small scale Fisheries	6
4. Gleanings from other Journals	7
5. Let's talk it over	8
6. New Fishing Craft	9
7. The Expanding Field of FRP	12
8. Meet our scientists.	13
9. Squid Fishing off VERAVAL	14



# Foreword

## EDITORIAL COMMITTEE

Shri. R. BALASUBRAMANYAN  
*Chairman*

Shri. K. C. PURUSHOTHAMAN  
*Secretary*

Shri. P. MADHAVAN  
*Member*

Dr. P. N. KAUL  
*Member*

Photography Shri. K. BHASKARAN

Art Shri. G. MOHANAN

Fish Technology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Editorial Committee.



# LAB TO LAND PROGRAMME OF CIFT - 4

*(One of the highlights of the Golden Jubilee Celebrations of the Indian Council of Agricultural Research being observed this year is a massive Lab-to Land - programme to which CIFT is contributing its mite. In the previous issues we had published reports on the training programmes on (1) Fish Plant Sanitation, Quality Control and Inplant Inspection held at Mangalore (2) a) Training programmes on filleting and freezing of fish b) Production from low cost fish, and c) Fish Plant Sanitation, Quality Control and Inplant Inspection held at Bombay and (3) Field Demonstration of Canning of clam meat and improved methods of fish curing held at Kumarakam and Calicut respectively. In this issue we publish a report on a two-day training programme held at Kumbalam in Quilon District )*



*Frying of clam meat*

## **Clam meat processing :**

Clam meat is a food item rich in protein and minerals. The characteristic taste of clam meat contributed particularly by the presence of relatively larger quantity of glycogen makes it the gourmets' choice all over the world. Clam meat

processed in different styles is very popular in many overseas countries. However, due to lack of knowledge about its potential as a palatable protein-rich food methods of its preservation as staple processed products and the potential demands from within the country and abroad, no serious

attempt was made in its conservation and utilisation by application of appropriate technology.

Realising the magnitude of the problem and the potential it has in meeting the protein requirements, the Central Institute of Fishery Technology (CIFT) had been investigating the problem of long term preservation of clam meat in an appropriate form.

Canning has been found to be an ideal method of preservation and the institute have worked out "a home canning set up" involving the barest minimum of equipment and machinery and which is labour - oriented has been suggested for this programme.

A two-day field demonstration programme of canning clam meat was organised on July 21 and 22 at Kumbalam near Kundara in Quilon District. This was in co - operation with All Kerala Malsia Thozhilali



Federation, Quilon, Kumbalam Mahila Samajam and Chittumala Development Block. About hundred persons belonging to the weaker sections, mostly women, actively participated in the programme.

Inagurating the programme on July 21 in a function at Kumbalam St. Michaels High School, Kumbalam Veterinary Surgeon Dr. Abdul Kahar emphasised the need of giving wide publicity about the pro-

tein-rich content of clam meat.

Chittumala B. D. O., Shri L. Luis presided.

Speaking on the occasion CIFT Joint Director, Shri M. R. Nair, said that about 1000 tonnes of clam meat could be made available from the Ashtamuti Lake only. But only a fraction of it was utilised, he pointed out. "The methodology evolved by the CIFT would help conservation of the otherwise wasted protein food, as also create employment potential for the rural population, thus improving the rural economic situation", he added.

Shri M. K. Kandoran, Scientist, welcomed the gathering and Shri K. K. Balachandran, Scientist expressed vote of thanks.



*Canning*

## MEETING AND APPOINTMENTS

The second Management Committee of CIFT held its first meeting on July 7, 1979. Shri G. K. Kuriyan, Chairman of the Committee and Director, CIFT, presided.

Shri K. K. Lakshmanan joined as Supporting Staff Grade I at Calicut Research Centre of CIFT



*Participants*



# SMALL SCALE FISHERIES

The small scale fisheries comprising of the traditional fisheries and related activities as practised by the artisanal fishermen, play a significant role in the Indian Fisheries. About one million active fishermen employing their indigenous crafts and gears and following the traditional methods of fishing are engaged in the small scale fisheries of the marine region. It contributes to about

65 per cent of the total marine fish production of the country. On the inland fisheries side (fishing in the rivers, lakes and reservoirs) the small scale fisheries include almost the entire fishermen as well as the fish farmers and the entire inland fish catch.

The number of indigenous crafts and gears employed in the small scale fisheries of the country is as below:

## CRAFT

Catamarans	:	47,000
Dugout Canoes	:	47,000
Plank built boat	:	39,900
Shore - seine boats	:	17,000
Others	:	67,700

## GEAR

Drag nets	:	2,56,000
Gill nets/draft nets	:	5,98,000
Cast nets	:	4,24,600
Traps	:	7,45,200
Shore - seines	:	1,20,900
Others	:	4,16,800

Normally, the fishermen engaged in the traditional fishing carry out a day's fishing leaving the village in the early morning hours and returning to the landing centres during the course of the day. Fishing is carried out in the inshore waters extending to 10-15 km from the shore.

The gears such as shore-seines, inshore drag nets, gill nets and lines are operated with the help of crafts in the sea. Bag nets and stationary types of nets are fixed in the tidal region in the estuaries, back-waters and inshore sea with stakes or with floats and sinkers. Cast nets are operated both from the shores as well as in the

open waters.

Prior to the introduction of mechanised fishing boats, the entire marine catch of the country was produced by the traditional fishing. In 1974, traditional marine fisheries landed an estimated catch of 8,43,961 tonnes out of the total marine fish catch of 12,17,797 tonnes; in 1975, the contribution from this fishery was of the order of 9,15,058 tonnes in the total marine fish production of 14,22,673 tonnes. The pelagic as well as mid-water fish catches are almost entirely landed by the traditional fishery.

It is well known that the inshore sea where the traditional fishery is carried out are productive fishing grounds, and significant increase in fish production can be achieved by improving the gears and fishing methods. Organisation of the Planning Commission have indicated that the return per unit of investment of non-powered boats is twice that of the powered boats and generate almost seven times more direct employment opportunities than the mechanised boats. Considering the importance of this sector, authorities have recommended that not less than 15 per cent of the plan outlay on marine fisheries development should be earmarked for this sector.

(India Fisheries - 1947 - 1977)



# GLEANINGS FROM OTHER JOURNALS

## New Strategy in Prawn Culture

A new strategy for staggered stocking and fractional fishing in intensive marine prawn culture was evolved at a workshop on transfer of technology (lab - to - land) organised by the Central Marine Fisheries Research Institute in Cochin recently.

The strategy aimed at improving the production of prawn in culture ponds also to enable the prawn farmer to realise periodic returns to meet his requirements.

Based on the bench-mark survey completed at different centres, farm family plans had been prepared for each family or family groups adopted under the programme.

For putting the plans into action, the Indian Council of Agricultural Research would provide subsidy and credit facilities under the integrated rural development programme for their capital expenditure.

-Indian Express

## Varsity Plans Marine Culture Course

The Cochin University Syndicate has decided to institute courses leading to MSc. and Ph.D in marine culture.

The Syndicate took this decision after examining a proposal received from Dr. E. G. Silas, Director, Central Marine Fisheries Research Institute, Cochin.

A Centre for Advanced Studies (C A S) in mariculture has been sanctioned to the CMFRI, Cochin, under the joint auspices of the UNDP and ICAR. The project is to start during the current year.

The Centre will undertake running up courses of work-cum-research leading to MSc. and research leading to Ph. D. in mariculture. The expenditure for the courses will be met by the Central Government and UNDP.

## Notebook and Uniforms For Needy

In observance of the International Year of the Child, the staff of the Central Institute of Fisheries Technology have donated school uniforms

and note books to 43 needy children.

The gifts were given away by Shri M. R. Nair, Joint Director of CIFT.



## Text Book on Fish Processing

CIFT will bring out a text book on Fish Processing Technology.

chandran as Members.

The text book will be based on the proceedings of the summer Institute on Fish Processing Technology conducted at CIFT in May 1978.



An Editorial Committee has been constituted with Shri M. K. Kandoran as Convener and S/Sh. P. V. Prabhu, T. K. Govindan, K. K. Bala-

The term mariculture denotes the culture of cultivable marine organisms in the inshore waters and adjoining estuaries and brackish waters. To augment fish production, great emphasis has been given to mariculture including coastal aquaculture, recently.

# LET US TALK ABOUT CIFT

## C. R. Chandra, Fish supplier, Vizag

What is the device developed by CIFT for transportation of fish in good condition to distant markets.

### CIFT

CIFT has perfected a technology for transportation of

A major thrust has been given for the development of mariculture of fishes, prawns, mussels, edible oysters, pearl oysters for pearl production and seaweeds.

Mariculture could help considerably in the integrated rural development of coastal areas, provide jobs and help use under utilised or unutilised inshore and coastal derelict waters.

In view of these facts mariculture is given top priority in the national development programme.

The CAS will be able to play a vital role in this field.

- HINDU

## Health From the Sea

Drugs obtained from marine flora and fauna hold a special place in the pharmaceutical arsenal. So far, some 150,000 species of marine organisms have come under the medical research microscope, and it has

fresh fish in insulated containers after preserving the fish in ice. Details of the recommended procedure are available in the pamphlet, Handling and Transportation of Fish published by CIFT.

## Member secretary, Gujarat Water Pollution

been found that sea sponges, for instance contain certain substances which kill off the majority of bacteria.

Among the other important discoveries are substances from octopuses and round-mouthed hag fishes used for the treatment of cardiovascular diseases; another found in the sea cucumber, which inhibits tumour growth; a blood coagulant found in sea snakes, which are abundant in the tropics; and an extract of starfish which produces an ointment that helps wounds to heal.

- HINDU

## First Fisheries Complex in Co-op Field

The first fisheries complex in the co-operative sector sponsored by nine Fishermens Primary Co-operatives will set up at Mararikulam, near Alleppy.

Several fish processing and ancillary units like canning factory freezing plant, ice plant and cold storage facilities are

## control board

What are the facilities available at the Veraval Research Centre of CIFT for waste water and Sewage analysis.

### CIFT

CIFT Research Centre at Veraval is already testing water for its potability. The following tests are usually carried out.

(Continued on page - 11)

included in the complex.

Mr P. S. Srinivasan, Minister of Industries laid the foundation for the main factory building at Chethi, Mararikulam recently.

- Indian Express

## Fish Breeding in Palghat District

The Fish Farmers Development Agency at its meeting at Palghat decided to distribute 5,000 fingerlings per hectare area of tank in Palghat district. These would be brought to Kerala, from other States.

These decisions were taken at a meeting of the agency with its chairman, Mr Prithivisingh, District Collector, in the chair. The committee has formulated plans to train tank owners on how to equip the tank for fish breeding.

Demonstration plots would be prepared in Chittur taluk in selected tanks and 10 persons given were training in fish breeding. Financial assistance would be given to these persons.

-- Indian Express

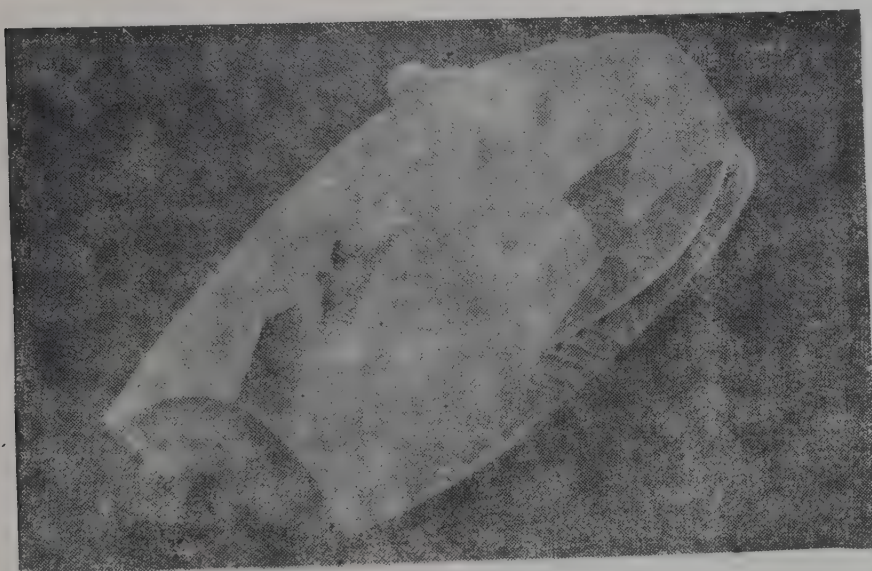


# NEW FISHING CRAFT FOR SURF RIDING AND BEACH LANDING

A simple, light-weight and long lasting fishing craft entirely built out of fibreglass-reinforced plastics (FRP) that can safely ride over the surf and land as well on the sandy-beach has been introduced on the East-coast of India as a prospective substitute to the traditional "Kattumarams"

## TECHNICAL SPECIFICATIONS

Overall length	18' - 0"
Maximum breadth	5' - 4"
Depth moulded	2' - 10"
Draft maximum under fully loaded Condition	1' - 8" at midship



*Stabilisers and stern tab*

1. The Craft is moulded entirely out of Fibreglass-reinforced plastics (fibreglass chopped strand mat/woven rovings and polyester resin) using rigid polyurethane foam as a sandwich core material.

2. The Craft is fully decked with ample space fore and aft for the stowage of equipments like oars, paddles, ropes, anchor etc. The deck is non-skid type and fitted out to provide any facility required to row,

sail, scull and to motorize either with an out-board or inboard or a light inboard-outboard drive as the case may be. It can work as well with the conventional lateen sail.

3. The fish holds are insulated and can be used to carry iced fish in the most hygienic condition. Hatch covers are buoyant and could serve as floats in the event of need



*Lifted by 4 men*

4. Freeing ports in the bulwark structure ensures that no water shipped remains on deck.

5. To prevent drift and provide an upright position on beaching, twin skegs are provided on the hull together with a fin to ensure directional stability.

6. The strength of the craft has been built into the



*Position and tilt of out board motor 20 H. P.*



*Positive bouyancy*

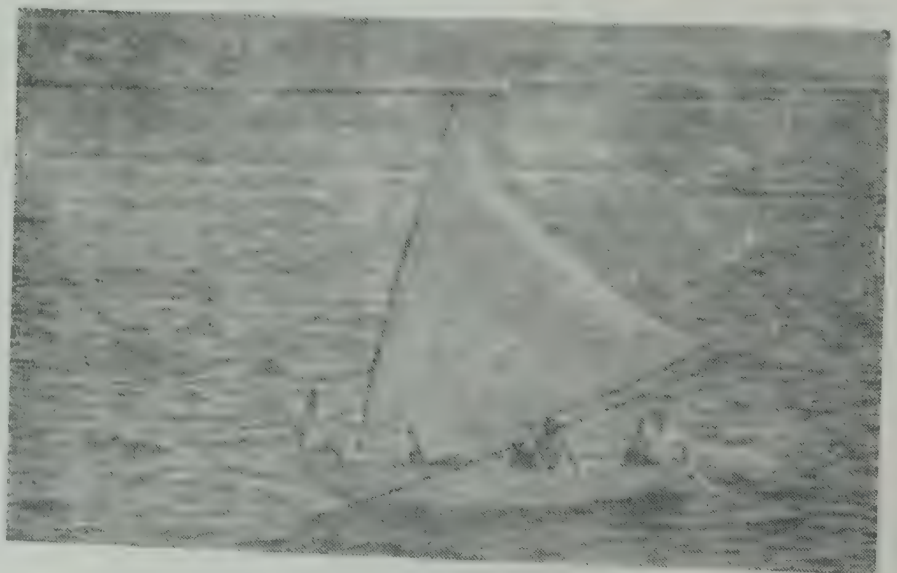
stability and rough usage with unsinkable characteristics

8. The Craft is light enough (300 kg) to be lifted and carried by four men forming its crew.

9. The Craft is suitable for operating the various fishing gear like gill-nets, long-lines,

hull through the ridges of the clinker strakes that run as buttock lines fore and aft, plus the bulwark stringer amidship that gives longitudinal strength to withstand the rigours of beaching and grounding in the surf.

7. The Craft has been designed keeping in mind the safe operation, seaworthiness,

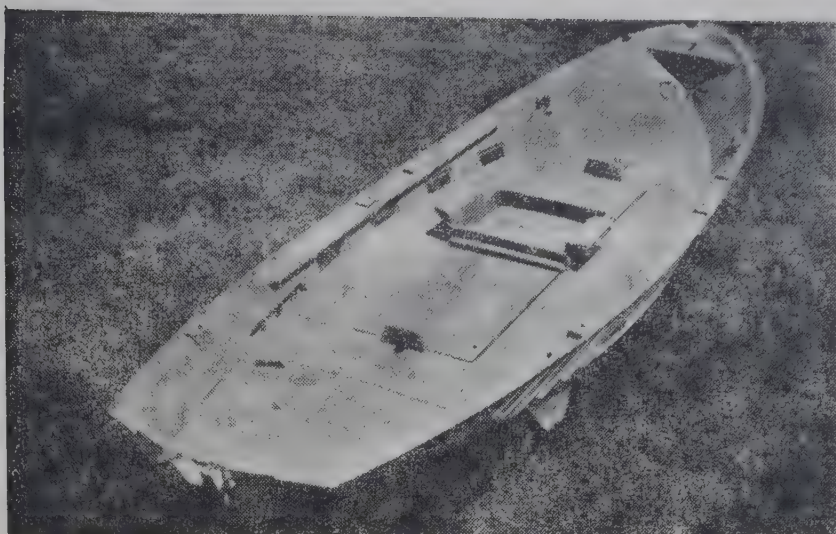


*Craft under sail*



hand-lines, trolling lines, fish traps and boat seining.

10. The Craft is suitably coloured that is pleasing and permanent with no maintenance problems.



*Deck layout and features including fixed position for out-board fuel tank*

Note :- The above craft can be insured against marine perils, fire, theft and total loss (strike, riot, civil commotion risks etc.)

(Continued from page - 8 )

1) Bacteriological analysis

2) Estimation of total temporary and permanent hardness etc. of water.

3) Estimation of nitrogen

4) Estimation of chloride

## CIFT

The traditional fishing crafts of India are all of the sailing type using other rectangular or triangular sails rigged from a single mast or/mast and a boom.

The different major types of sail boats in the country are 1) Catamarans (15-25 ft) 2) Dug-out canoes (15-35 ft) and 3) Built-up boats(20-45 ft). They are mostly coastal and inshore in operation with sails and supported by oars, paddles

and punting poles. Similar crafts are also operated in the inland waters like rivers, backwaters, lakes and reservoirs.

There are also sailing crafts-built-up boats with carvel planking ranging in size from 60 - 120 ft OAL with single or multi-sailes with mostly overhang rudders - employed for coastal cargo transport. Occasionally, auxilliary engines are also installed. Some of them sail from Indian ports to Gulf countries, Sri Lanka etc.

## HEROLD H. MERTES, GERMANY

I would like to know the places in India where sail boats are still regularly engaged in commerce fishing and trading.

The Distribution of the different crafts and their approximate estimated numbers are given below :

1) Catamarans	- East coast of India and a little part of South West coast of India	45,000 Nos. ( marine )
2) Dug - out canoes	West coast of India	40,000 Nos ( Inland/Marine )
3) Built - up boats	Maharashtra coast, Gujarat coast, Palk Bay Gulf of Manaar ( East Coast ), Andhra Coast West Bengal coast	30,000 Nos ( Inland/Marine )
4) Sailing cargo vessels	Gujarat, Maharashtra, Tamil Nadu (Tuticorin)	1,000 Nos ( Marine )

# THE EXPANDING FIELD OF FRP

## ( Fibreglass - reinforced plastics )

Fibre glass reinforced - plastics has continued to sustain its pressure and scope of its application in a wide and various fields all over the world. Its claim to sweep the major share in all the markets of engineering materials seems to be quite modest. A study of the total production of FRP in recent years and consumption in various fields of applications will further strengthen its claim as the material of tomorrow.

### TRANSPORT :

In 1977, transportation topped the league of FRP consumption market in America. The volume of FRP, used mainly in cars and trucks, increased from 180,900 tonnes in 1976 to 209,100 tonnes in 1977. A further 12% rise is predicted for 1978. In U.K and Ireland 16.5% of the total production of FRP was used in this market in 1977; in France it was 20.5%, in Germany 11.8%; in Italy 10.7% and in Denmark 5%.

### MARINE :

Marine field remains one of the biggest markets of FRP

in U. S. A. and is the biggest in Denmark with 55% of total production going to it. In comparison to the consumption in 1976, FRP consumption in the marine field has increased by 9.6% in U. S. A. and a further increase of 8% is predicted. In 1977 in U. K. and Ireland the percentage of FRP consumption in the marine field was 17%; in France 13.3%; in Germany 6.4% and in Italy 10.7%.

### ANTI-CORROSION :

The application of FRP in anti-corrosion market in U. S. A. registered a 20% increase in 1977. In U. K. and Ireland, in the year 1977, 18% of the total FRP production was used in anti-corrosion market; in France 13.3%; in Germany 17%; in Italy 25%; and in Denmark 10%.

### CONSTRUCTION :

In the field of construction the volume of FRP consumption is the highest in France with 23.5%, in U. K. and Ireland with 18.5%; in Germany with

19% and in Denmark with 20% and it stands third in U. S. A. with 14.5%.

Besides the above areas a number of consumer items, electrical and electronic components are being made extensively out of FRP.

In India too, when the conventional construction materials like wood and steel for fishing boats are faced with rising cost and frequent maintenance problems, FRP boats will last longer with practically no problems on maintenance. More than one firm in India is now producing the required fibreglass and the resins.

The excellent corrosion resistance to sea water, much better impact strength, ability to manufacture complicated large shapes in single piece and light weight are some of the advantages which go a long way in selecting FRP as a material of construction for marine application including manufacture of life boats, fishing trawlers, patrol crafts, luxury yachts etc.





## P. V. PRABHU



Shri. Padmanabha Vasudeva Prabhu is Scientist S2 in-charge of the Processing Division, Central Institute of Fisheries Technology. Born on 10th June, 1936, Shri Prabhu had his early education in the T. D. High School, Cochin from where he passed his S.S.L.C. examination in first class. He underwent his college education in the Maharajas College, Ernakulam. He took his M.Sc Degree in Chemistry and Physics from the Kerala University with first class.

After a brief spell of teaching career in a private College Shri. Prabhu joined the Central Institute of Fisheries Technology on 10.8.1960 as Research Assistant in the then Processing Wing. On his pro-

motion as Assistant Research Officer (Processing) in 1962 Shri Prabhu was posted at the newly organised substation of the Institute at Veraval in Gujarat State to take up Investigation on aspects of fish processing and waste utilization. When the Institute was entrusted with the task of undertaking the compulsory preshipment inspection of processed fishery products meant for export, Shri. Prabhu was promoted as the Senior Inspection Officer - in - charge of the operational part of the scheme. In the infant days of the introduction of the inspection scheme under the stewardship of Late Dr. V. K. Pillai, Shri Prabhu had been greatly responsible for helping in streamlining the procedure of inspection as also instilling a sense of confidence and winning appreciation from the processors, in the systems introduced.

When the Indian Council of Agricultural Research launched the All India Co-ordinated Research Project on Transportation of Fresh Fish and Utilization of Trash Fish Shri. Prabhu was promoted as Technologist-in-charge of the execution of the Project from its Bombay Centre. Besides

being in-charge of the Co-ordinated project Shri. Prabhu was also in-charge of the Bombay unit of the CIFT in which capacity he was responsible for guiding, co-ordinating and conducting various research programmes undertaken there in addition to the administrative control of the unit. In 1976 Shri Prabhu was transferred to the Head quarters of CIFT in Cochin. He is now working as Scientist - in - charge of the Processing Division of the Institute.

Shri Prabhu has worked on all aspects of fish processing and preservation including curing/drying, canning, freezing, packaging, transportation, development of byproducts and diversified products from fish and shell fish and has published over a score of scientific papers on these subjects.

A founder member of the Society of Fisheries Technologists (India), Shri Prabhu was for some time the Asstt. Editor of the journal, Fishery Technology, published by the Society.

Besides, Shri Prabhu is a member of several committee constituted by the Director for the Institutes' management and takes active interests in matters connected with research as well as management of the Institute.

✱









# Fish Technology newsletter

Vol. II No. 2

August 1979



Field Demonstration of Canning Clam meat  
By CIFT Scientists at Vaikom



CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY  
MATSYAPURI P. O.  
COCHIN - 682029

## CONTENTS

	Page
1. Foreword	3
2. Lab - To - Land programme	4
3. Production of Frozen Fish Fillets	6
4. Let's talk it over	7
5. Gleanings from other journals	8
6. Meet Our Scientists	10



# Foreword



## EDITORIAL COMMITTEE

Shri R. BALASUBRAMANYAN  
*Chairman*

Shri K. C. PURUSHOTHAMAN  
*Secretary*

Shri P. MADHAVAN  
*Member*

Dr. P. N. KAUL  
*Member*

Photography Shri K. BHASKARAN

Art Shri G. MOHANAN

Fish Technology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Editorial Committee.

Abbreviation : Fishtech News

## PROGRAMME OF CIFT - 5

*( One of the highlights of the Golden Jubilee Celebration of the Indian Council of Agricultural Research being observed this year is a country - wide programme of transfer of technology known as the 'Lab-to-Land' programme to which CIFT is also contributing in a humble way. In the previous issues we had published reports on such programmes held at Mangalore, Bombay, Kumarakam, Calicut and Kumbalam. In this issue we publish a report on a two-day training programme held at Vaikom in Kottayam District )*

Clams, called "Kakka" in Malayalam, belong to *Velorita* and *Meretrix Spp.* They are available from the brackish water lakes and estuaries. Marine clams are met with in the sandy beaches, especially in the bar mouth areas.

Though there are no systematic data available on the availability of clams it is understood that Vembanad lake which extends from the south of Cochin Port to the extensive paddy fields of Kuttanad of Kerala is the richest source of clams.

The shell of the clams is the most important source of calcium carbonate made use of in the lime industry in the State. The fossilised deposits of the clam shells collected in the Vembanad lake perhaps over centuries singularly meet the entire requirement of calcium carbonate for the



*Collection of clams*

working of a nearby cement factory. In this area alone there are thousands of persons actively engaged in collection of clam shells. Of these nearly 50 per cent people are engaged in collection of live clams. A negligible portion, however, is boiled to recover the meat which is used for home consumption and sold in local markets.

But as a protein-rich food item its potentiality has not yet been exploited fully in the country. The Central Institute of Fisheries Technology (CIFT), Cochin have worked out a detailed methodology to process and preserve the clam meat. This will help to create employment potential for the rural population and improve their economic condition.



Canning and pickle making are the two important methods worked out by CIFT. These methods were demonstrated to the people of Palliprathussery (Vaikom) in Kottayam District in a two-day Lab-to-Land programme in August, 1979.

The programme was organised by CIFT in cooperation with the Vaikom Lime Shell Co-op. Society Ltd. About one hundred persons participated in the training.



*Making of clam meat pickle*



*Participants with Scientists*

While inaugurating the programme in a function held at Palliprathussery S. N. D. P.

Hall on August 21, T. V. Puram Panchayat President Shri M. Vasudevan emphasised the need

of transferring such technology in other parts of the District. He pointed out that there were about 500 families in Vaikom Taluk alone who eke out their living on collection of clams and selling of clam meat in local markets.

Shri T. G. Sudhakaran Vaidyar Presided over the function.



# PRODUCTION OF FROZEN FISH FILLETS

The fish freezing industry in India is mainly export oriented and depending mainly on prawn freezing. It is reported that a considerable part of the freezer capacity remains idle because of the non-availability of prawns. Very often this situation leads to a heavy loss to the processing industry. A partial solution to this problem is to adopt freezing of fish in the form of fillets. Fillets are the strips of flesh cut parallel to the backbone of the fish. Seer, tuna, mackerel, Chanos chanos, cat fish, perches, mullets, threadfin bream, carps, dora, shark, eel, Indian halibut etc. are landed in large quantities in India.

## Filleting :

Filleting can be done by hand or by using a filleting machine. None of the machines available at present is capable of filleting all varieties and sizes of fish. Although filleting machine is preferable for use in a factory, filleting by hand is also economic and can be followed by the industry.

Fillets may be with or without skin. The belly flaps are usually separated from the fillets as the belly flap tissue may discolor during frozen

storage. In many developing countries the head and belly flaps will find a ready sale on the subsistence market and the fillet will fetch a much higher price in the luxury market.

## Preparation of fillets

1. Select fresh fish for filleting.
2. Grade the fish according to size.
3. Remove viscera and wash thoroughly with potable water.
4. Place the fish (on side) on the work table. Cut (with a sharp knife) from just behind the base of the pectoral fin round to back of the head. Cut towards tail along the line of the dorsal fin. Cut forward to clear the fillet from the ribs and cut over to the edge of the ribs towards the tail and remove the fillet.
5. Turn the fish over and separate the fillet from the other side of the fish.
6. Trim the fillets to remove the belly flaps, fins etc.
7. To remove the skin, cut nick in tail of the fillet using a thin bladed knife longer than the width of the fillet. Angle the knife slightly downwards, and pull skins across the knife while at the same time making slight saw cutting movements with the knife.
8. Wash the fillets thoroughly in potable water.
9. The fillets may be dipped in dilute brine for slight salting. Usually a dip in 15% brine (sodium chloride) for 15 to 30 seconds is practised.

Filleting by hand is quite easy and economical and a skilled worker can fillet and skin 10-12 kg of fish like cat fish, perch or milk fish per hour. The yields of skinless fillets obtained from many species of fishes are also good.

<i>Name of fish</i>	<i>% yield of skinless fillets</i>
Cat fish	25 - 28
Indian halibut	37 - 40
Perch	30 - 32
Milk fish	39 - 41
Ribbon fish	29 - 30
Seer fish	45 - 47
Jew fish	34 - 35



# LET'S TALK IT OVER

**Asst. Director of Fisheries, Govt. of Gujarat :**

It is learnt that your Institute has conducted experiments with various gear materials and has come to the conclusion that H. D. P. E. tape twine is more efficient than other gear materials for trawl nets fabrications.

**CIFT:**

Comparative fishing trials

were conducted with bulged belly type trawls made out of Nylon, Polyethylene monofilament and HDPE tape twisted twines. Results indicate that the trawls fabricated out of HDPE tape twisted twines are 2.0 and 1.4 times more efficient than the nylon and polyethylene monofilament trawls respectively.

**Shri S. V. B. Satyanarayana Murthy, Hydera-**

**bad :**

I propose to start a small scale unit for the manufacture of monofilament twines. I came to know that the monofilament twines that are needed for fishing nets have to meet the specifications set by your Institute. Please let me know the specifications.

**CIFT :**

This Institute has

## Freezing of fillets

a) *Individual quick freezing*

i) After brining allow the fillet to drain, wrap them individually in polythene sheet (150 gauge) and freeze in a contact plate freezer or tunnel freezer at  $-35$  to  $-40^{\circ}\text{C}$ .

ii) Pack the frozen fillets in cartons and store at  $-23^{\circ}\text{C}$

b) *Block freezing*

i) Weigh the drained fillets into required lots (500 gm, 1kg or 2kg) and pack in polythene lined waxed cartons

ii) Pour sufficient quantity of glaze water (temp:  $1$  to  $3^{\circ}\text{C}$  to cover the fillets

iii) Freeze the fillets (in carton) in a freezer at  $-35^{\circ}$  to  $-40^{\circ}\text{C}$ , remove from the freezer, pack in master cartons and store at  $-23^{\circ}\text{C}$ .



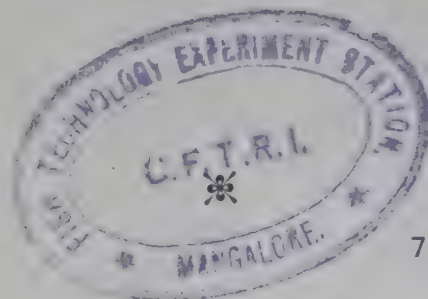
## HULL PRESERVATION

### PRACTICES

During July 1979, the Marine Engineering Division of the Institution of Engineers (India) West Bengal State Centre at Calcutta organised an All India Seminar on 'Hull preservation Practices'. A large number of engineers and Scientists participated in the Seminar and a good number of technical papers were presented and discussed.

CIFT through its Scientists of the Craft Division, M/s

K. Ravindran and R. Balasubramanyan, presented a paper entitled "Protection against Marine Corrosion and fouling of steel fishing trawlers". Dr Ravindran attended the Seminar. The hull maintenance practice adopted by the Indian fishing fleet which operates a large number of imported and indigenously built steel trawlers were discussed.



## KERALA ACCOUNTS FOR MAXIMUM FISH CATCH

Total marine fish catch in the country in 1978 was estimated at 14 - lakh tonnes against 12.6 lakh tonnes in the previous year.

The catch in the mechanised sector rose from 6.25 lakh tonnes to 7.19 lakh tonnes mainly due to the introduction of Purse-seine gear. Purse-seine catches in Karnataka rose sharply from 25,000 tonnes to

75,000 tonnes which was about half the total catch in that state.

The maximum production was in Kerala with 3.73 lakh tonnes followed by Maharashtra (2.84-lakh tonnes) and Karnataka (1.53 lakh tonnes), in Andhra Pradesh alone there was a fall in the catch.

- HINDU

## 'INTER FISHING 80'

'Inter Fishing 80' is scheduled for 4th to 8th March, 1980 at Bordenre, France. This fourth International exhibition on maritime activities, fishing, ship building, ports, off shore technology, pollution prevention etc is being organised by Technoexpo S.A./ Interfishing i) rue la Michodiere 75002, Paris, France.

- Sea Food Export Journal

worked out specifications for high density polyethylene for fishing purposes which have been brought out by the Indian Standards Institute as a national standard (IS 6347 - 1971 - Polyethylene monofilament twines for fishing). You may please contact the above institution.

**Development Officer,  
The State Industrial and  
Investment Corporation  
Bombay :**

Kindly enlighten us on the following points:

a) Various sizes of ropes and

nets normally used in fishing industry.

b) Size-wise break-up of requirement of these ropes and nets.

### CIFT :

The sizes of ropes normally used in fishing industry includes 3 mm, 4 mm, 6 mm, 10 mm, 12 mm, 14 mm, 16 mm and 18 mm. Material used for fabrication of ropes is mostly polyetheylene. Polypropylene and nylon ropes are not produced indigenously on a commercial scale for fishing nets.

Ready made nets are generally not manufactured by any firm. Webbing of different mesh size and twine size are made by the different net making plants which is tailored to different designs. Polypropylene webbings are not made in India. Nylon is mainly used for purse seine webbings. The body of the webbing will usually be of knotless webbing with nylones 210 denier yarns and 210 denier /  $\frac{1}{2}$  twines ( $\frac{1}{2}$  code) while the bunt, selvedge etc will be knotted webbing of 210/2/3 to 210/6/3.



# COMPUTER THAT CATCHES FISH

The computer will be "one of the boys" on trawling trips in the future. Quicker than the human eye can resolve the fish echoes on the horizontal sounder screen it identifies the shoal of fish detected and latches on to them electronically. By dint of the best possible navigational aids it pilots the fish almost automatically into the trawl. The consequence is that the crew can concentrate more on the target, so that trips are shorter and more profitable.

The best course is determined by an intelligent combination of computer and the most up-to-date locating devices; this was tried out for the first time recently in a Hamburg stern trawler in the Atlantic off southern Ireland. The heart of this "Integrated fishing system", is the horizo-

ntal sounder screen coupled with a computer. It informs the captain continuously of the actual situation in respect of a catch.

Following the analysis of the fish echoes, which have been converted to computer data, a floating arrow on the screen indicates the position of the shoal continuously, at its precise angle to the trawler. The computer also prints out the "depth" of the shoal, so that the captain is aware of its shape and extent.

In order to be able to follow the movements of the trawl as well, the computer analyses the echo soundings and reception signals of the trawl probe, which is attached to the trawl two rope and has its bearings taken by two transmitters. From these data it computes the exact position

of the net, towed somewhere behind the ship, plotting it into the overall picture with a line of dashes; the precise depth of the net appears in the form of a thick line.

By continuously following the precise positions of the shoal and the trawl the computer, which also processes vertical sounding data, can work out the best heading for the ship, having already determined the course being taken by the trawl in relation to the shoal of fish, an angle which is also plotted into the picture as the "catch target/net indicator". All the captain has to do is to stand on the bridge and manipulate his helm until the trawl heading is at zero angle to the shoal heading.

- HINDU

---

## FREE MEDICAL CHECK UP FOR CHILDREN

Seventy children aged 12 and below of the staff of Central Institute of Fisheries Technology (CIFT), Cochin have been given free medical check-up including dental examination. This programme was arranged by the CIFT as

part of observance of the International Year of the Child and Golden Jubilee Year of the ICAR. Last month the staff of the CIFT donated school uniforms and note books to 43 needy children.



## APPOINT- MENTS

S/Shri N. Padmanabha Pillai, Shaju A. Averah and Gopal Rao Desai joined the CIFT Headquarters as S. S. Grade I, Technician -2 (Draftsman) and Scientist S-1 respectively.



## T. K. GOVINDAN



Shri Therampurath Krishna Panickar Govindan (born 20th July, 1928 at Kumbalam, Ernakulam District, Kerala) is Scientist S-2 heading the packaging Division of the Central Institute of Fisheries Technology, Cochin, since April, 1979. Earlier to this, he worked in the All India Co-ordinated Research Project on Transportation of Fresh Fish from January, 1972 and held charge of the Research Centre of the Institute at Kakinada for over 3 years. In this capacity, he organised a well equipped laboratory for tackling research problems on fish processing technology at that Centre and initiated the work. He designed and fabricated one dismantlable insulated galvanised iron container for

iced and frozen fish transportation and successfully tested it in the field for transporting fish from Kakinada to Delhi and Calcutta by rail side by side with other conventional containers.

Having had his earlier education at Ernakulam (B. Sc and a Post-graduate Diploma in Applied Chemistry of Oils, Soaps & Aromatics) Shri Govindan did his M. Sc in Organic Chemistry by research at the Madras University under the guidance of the late a renowned organic chemist of his time, Dr K. N. Menon, before joining the Central Marine Fisheries Research Institute, Mandapam as Research Assistant in January, 1957. Transferred in the same capacity to the present Institute in December, 1958 at its very inception, he was promoted as Assistant Research Officer (Quality Control) in November, 1960 and as Research Officer (Jr. Fishery Scientist under ICAR) (Processing) in January 1964 and headed the Calicut Research Centre of the Institute for over 2 years in 1963-65. Transferred back to the headquarters as Head of the Processing Division in September, 1965, he held that

assignment until promoted and transferred to Kakinada as Scientist S-2 early in 1972.

Shri Govindan has several *firsts* to his credit. He was the first to establish a general biochemical differentiation in the muscle compositions of crustaceans and molluscs on the one side and other varieties like teleosts, elasmobranchs etc on the other in so far as the former contained 8 to 10 the amount of free alpha amino acids and about twice the amount of non-protein nitrogen compared to the latter. He was the first to report a parallel increase in the trimethylamineoxide content of prawn muscle along with increase in salinity of the medium in which they thrive, thus establishing a definite physiological role for the compound in prawns. Heavy losses in protein and non-protein material from prawn muscle occurring due to leaching during storage in ice were reported and their utility in assessing the eating quality of the ice-stored material indicated.

Shri Govindan was actively associated with the work of laying down quality standards for frozen, canned and dried





## CIFT is at your Service

*It transfers Fishery Technology by way of:*

- Demonstrations of Fishing and Fish Processing techniques evolved by it
- Answering Technical queries
- Supplying project reports and design drawings
- Training courses on fishing and fish processing

*Please contact :*

Director,  
C. I. F. T.,  
Matsyapuri P. O.,  
Cochin - 682029

---

prawns, besides studying the detailed mechanism of spoilage of prawns when held over with and without contact with ice. Losses in nitrogenous constituents of fish muscle during salt-curing and a method for satisfactory removal of urea from elasmobranch fish muscle were worked out while at the Calicut Research Centre. He worked as counter-part to Shri

C. G. Tucker, FAO Expert on Accelerated Freeze Drying in 1966 and studied the freeze drying characteristics of the common food fishes of Kerala coast as well as several ready-to-eat high calorie food preparations based on fish. Also studied the keeping quality of several fishes and shell fishes in refrigerated sea water.

Shri Govindan is a

Founder Member of the Society of Fisheries Technologists(India) and edited its official organ, FISHERY TECHNOLOGY, from 1969 to 72. He has got more than 130 scientific/technical/popular publications to his credit covering almost all aspects of fish processing technology. His absorbing hobby is science-writing.



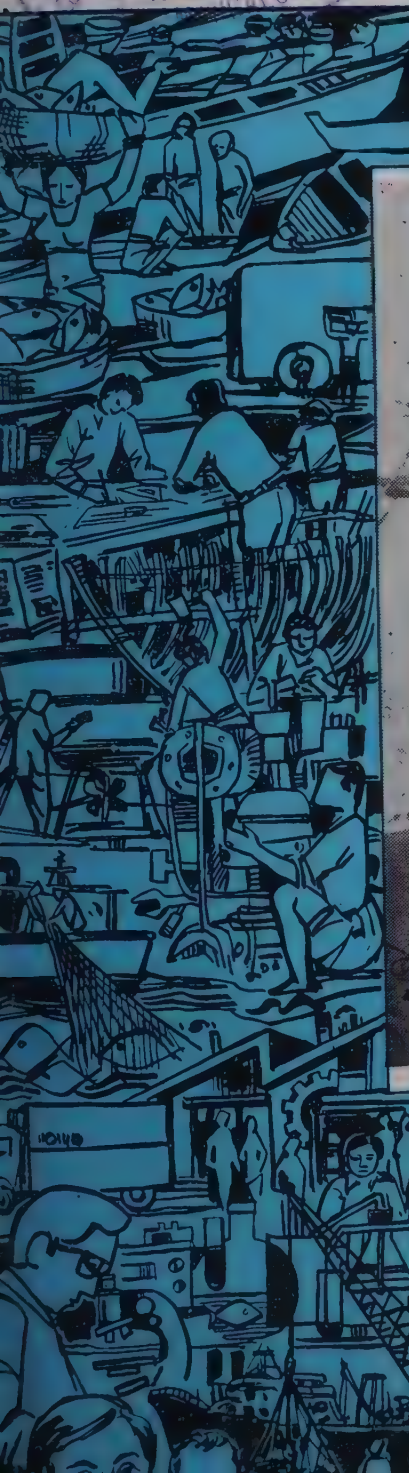






# Fish technology newsletter

Vol. II No. 3 SEPTEMBER 1979



Inauguration of CIFT's Lab-to-land programme at Madras. (left to right) Thiru C. Chellappan, Director of Fisheries, Tamilnadu, Shri. G. K. Kuriyan, Director of CIFT, Thiru G. Thirumal, Commissioner and Secretary, Department of Forest and Fisheries, Tamilnadu and Thiru G. R. Edmund, Food Minister, Tamilnadu.



CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY  
MATSYPURI P. O.

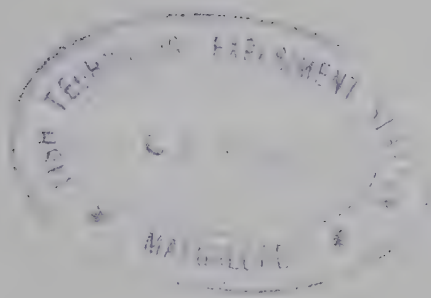
COCHIN - 682029

## CONTENTS

	Page
1) Foreword	3
2) Lab - to - Land	4
3) Guidelines for the selection of materials for Marine Screw Propellers	6
4) Let's talk it over	7
5) Ecological balance between Land and Sea	8
6) Gleanings from other Journals	11
7) Meet our Scientists	13
8) What they have to say about CIFT	14



# Foreword



## EDITORIAL COMMITTEE

Shri R. BALASUBRAMANYAN  
*Chairman*

Shri K. C. PURUSHOTHAMAN  
*Secretary*

Shri P. MADHAVAN  
*Member*

Dr. P. N. KAUL  
*Member*

Fish Technology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

Photography Shri K. BHASKARAN

Art Shri G. MOHANAN

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Editorial Committee.

Abbreviation : *Fishtech News*

# LAB - TO - LAND PROGRAMME

## OF CIFT - 6

*One of the highlights of the Golden Jubilee celebrations of the Indian Council of Agricultural Research being observed this year is a country - wide programme of transfer of Technology known as the Lab - to - Land programme to which CIFT is also contributing in a humble way. In the previous issues we published reports on such programme held at Mangalore, Bombay, Kumarakom, Calicut, Kumbalam and Vaikom. In this issue we present a report on a two - week training programme held at Madras.*



*Icing and packing of fresh fish in insulated containers for transportation of Fish*

A two-week training course on fish processing was organised by CIFT at Chetput Fish farm in collaboration with Tamilnadu Department of Fisheries.

Inaugurating the Training programme on Sept. 20, 1979,

Tamilnadu Food Minister, Thiru G. R. Edmund, stressed the need for making available to small fishermen Laboratory research data on processing, preserving, handling and transporting of marine products.

Thiru Edmund said that the training programme would

help improve the socio-economic conditions of small Fishermen by teaching them modern methods of preserving and processing their catch.

Presiding over the inaugural function, Thiru G. Thirumal, Commissioner and Secretary, Tamilnadu State Department of Forests and Fisheries, said the State Fisheries Corporation had introduced, on an experimental basis, 10 fibre glass boats in some places in Thanjavur, Ramnad, etc. These had been given to poor fishermen at 50 per cent loan. The State Govt. had plans to organise a net work of ice plants and cold storage units along the coast, from Kanyakumari to Madras. These would enable fishermen to increase the returns on their catch from the present Rs. 3.50 per kg to Rs. 5.50.





*Cutting of Thermocole for insulating fish containers.*

CIFT Director, Shri. G. K. Kuriyan said the training course would cover three aspects of fisheries.

nutritious products like fish wafers, soup powder, noodles etc.

Shri Kuriyan said the



The existing methods of handling fish on trawlers led to nearly 20 per cent of spoilage, which could be eliminated by taking insulated containers to the fishing ground and transporting the catch to the shore and the interior in iced conditions.

The second part of the programme would concentrate on production of diversified products from low cost fish. These had a very low commercial value which could be enhanced by processing, from the low cost fish, a variety of

highlight of the programme was training in production of shark fin rays. At present, dried shark fin was an important marine item exported at a very low price. But the importing countries extracted the rays from the fin and marketed it at a much higher price. India had now developed the technology needed for the extraction,

The third course would stress the importance of quality control in fish processing.

Thiru C. Chellappan, Tamilnadu Director of Fisheries proposed a vote of thanks.



*Participants and instructors of the training course.*

# GUIDELINES FOR THE SELECTION OF MATERIALS FOR MARINE SCREW PROPELLERS

The propeller in a fishing boat is being one of the most stressed components, the selection of materials for propeller is primarily governed by technical considerations. A propeller alloy should essentially show good strength, high corrosion resistance and superior erosion resistance. All the three factors are very important, as the propeller is operating in a highly corrosive environment namely, sea water for hours together continuously. The rotation of the propeller causes the tip region moving at a considerable speed, in turbulent water. The propeller is, therefore, subjected to the destructive types of attacks such as impingement attack, dezincification attack and cavitation damage. All these may occur simultaneously.

Impingement attack occurs when Propeller blades strike sea water contained entrapped air bubbles. The result is the formation of a large number of pits which are generally smooth and horse-shoe shape in appearance. Most of the ferrous alloys, copper and Admiralty metal (Copper 70%; Zinc 29% & Tin 1%) are susceptible to this type of attack. Though cathodic prote-

ction of hull reduces this damage, these materials are not recommended for marine propellers.

Copper-zinc alloys generally known by name brasses are subject to dezincification attack. The damage occurs as a result of (presumably) selective dissolution of very poor mechanical strength. Sea water is a very favourable medium for intensifying this type of damage. Dezincification may be in the form of plug type (pitting) or layer type. In the trade circle high tensile brass of composition copper 57%; tin 1%; Iron 1%; Manganese 1% and remainder zinc is often termed as bronze. This alloy undergoes dezincification in sea water and therefore should not be used for marine propellers. Brass containing 15 to 37% zinc such as Admiralty brass and Aluminium brass are also subject to dezincification. Susceptibility to dezincification increases with rise of zinc content. The remedy against this is certain alloy additions, often called inhibitors. The addition of few hundredths of a per cent arsenic, antimony, phosphorous reduces dezincification susceptibility.

A propeller is also often subject to cavitation damage which is due to a conjoint action of fast liquid flow rate (mechanical) and corrosion (electrochemical). It occurs when vapour bubbles collapse (implode) on the metal surface (propeller) causing a continuous hammering action. The pressures reaching a value of the order of 60,000 lb/sq. to destroy the metal. Cavitation damage causes the removal of the metal which can be seen in the form of a number of closely spaced craters. The surface becomes very rough.

A practical remedy is difficult and involves a two prong attack: counteracting the mechanical effects and counteracting the electrochemical (corrosion) effects. The former lies in improving the design of the geometrical shape of the propeller to minimize the hydrodynamic pressure difference associated with velocity effects of fast flow of sea water past the propeller blades. This is in the realm of naval architecture and can be achieved only by an experienced designer.

The latter involves the use of more corrosion resistant



# LET'S TALK IT OVER

**M/s. Peejay Indo - Bulgarian Fisheries Ltd,  
New Delhi:**

We understand that your

Institute has been able to evolve the technology to prevent black spot formation in shrimps during the course of freezing. Kindly advise us about this technology?

CIFT: Prevention of black spot formation or 'melanosis' (which is an enzymatic reaction) demands cutting off access to oxygen. Generally, this can be

alloys which resist both corrosion and erosion. The production of satisfactory propeller materials is still more an art than a science. There are many proprietary alloys which contain four or five ingredients

than copper. Manganese bronze, phosphorous bronze, special gunmetal, Nickel manganese bronze etc. are used for casting propellers. Manganese bronze is a preferred material in India, the nominal composition is as follows.

Nickel	: 21.0 - 24.0%
Carbon	: 3% max.
Silicon	: 1.0 to 2.8%
Manganese	: 1.8 to 2.4%
Chromium	: 0.5% max.
Phosphorous	: 0.8% max.

Some foundries in India have the licence to import Ni Resist and have started production. The high elongation of the alloy permits cold working while repairing damaged propellers.

The following additional points are to be adhered to for increasing the longevity of propellers. The propeller is to be finished to a smooth surface so that it will not provide site for nucleation of bubbles that cause cavitation damage. No spillage of paints on propeller should occur while painting hull. Paints spillage will cause severe local pitting. Do not anchor vessels continuously for long periods where water is contaminated with sulphides or polluted.



	Nominal composition %							
	Cu	Al	Mn	Ni	Zn	Fe	Sn	Pb
Manganese bronze	78							
	58	1	0.5	-	35	1	0.3	0.1

Phosphour bronze is a copper base alloy containing about 8% tin and about 0.4 % Phosphorous. Gun metals are basically alloys of copper-tin-zinc. Strength and corrosion resistance of gun metals vary considerably depending upon their composition.

Aluminium bronze (aluminium content limited to about 9%), manganese nickel aluminium bronze, stainless steel and spheroidal graphite austenitic cast iron known under the trade name, Ni Resist are some of the alloys which have found commercial applicability abroad. Aluminium bronzes are well suited for marine use but its use has been restricted owing to difficulties of maintaining controlled conditions during manufacture. Manganese nickel

aluminium bronze also shows good corrosion resistance and toughness but the manufacturing conditions require close tolerance of heat treatment parameters. Stainless steel (18/8 - 18% Chromium and 8% Nickel) containing 2-3% molybdenum exhibits excellent corrosion and erosion resistance in sea water. Care is to be exercised to avoid hair-line cracks during manufacture. These alloys are also prone to crevice attack. Ni Resist represent a class of cast iron which is comparatively cheap and possess adequate mechanical strength and corrosion / erosion resistance. Ni Resist conforming to D2C - ASG3 of IS 2749 - 1964 of the following chemical composition has been found to be suitable for propeller casting.

# ECOLOGICAL BALANCE BETWEEN LAND AND SEA

The areas bordering the coastline of the continents are subjected to a variety of environments and they also have a sizable percentage of the world's population. Industrial, residential and recreational complexes occupy large areas of the coastal tracts of the highly developed countries.

In the near future, expansion of many of the underdeveloped countries will undoubtedly be concentrated in coastal zones. With the rapid advances in technology and with increasing population, the coastal areas will assume major

importance in respect of energy, minerals, transport, food and recreation.

The various environments within the coastal zone are: bays, deltas, sandy beaches, shingle foreshores, lagoons, muddy foreshores, salt marshes

prevented by immediate icing after catch and keeping the material immersed in a mixture of ice and water. Since the enzyme responsible for the black spot formation is more concentrated in the head portion, removal of the head portion immediately after catch and washing of the tails followed by icing delays the phenomenon. Prawns that have remained for long without ice at ambient temperature, when iced, develop black spots much earlier than those iced immediately after catch. This points to the significance of icing immediately after catch. Treatment with chemicals like potassium metabisulfite in small quantities used as dip also delays onset of 'melanosis'. A 0.2 - 0.5% solution, either in fresh water or sea water can be used with a dipping time of 1-2 minutes. It may kindly be noted that higher levels of sulfite are liable to cause bleaching of shell colour.

## Deputy Director, Exploratory Fisheries Project, Port Blair :

Kindly recommend the best preservatives for the cotton long-lines and name of the firms who can supply them.

CIFT: Cotton long lines can be treated in 5% warm cutch solution (tannin) for a night and then fixed in 1% copper sulphate solution to which liquor ammonia is added till a deep blue solution is obtained. The material is kept in the bath for 15 mts, washed thoroughly in water and dried. A further coating of tar and kerosene in the ratio of 3:1 may be done and the samples dried in shade.

A second method is to use 'tar stat' a chemical preservative which can be

obtained from M/s Shalimar Tar Products, XXX/621, Warriam Road, Ernakulam, Cochin-683 016. You may contact their agents at your place.

## M/s. Jeewajee & Company, Madras :

We would like to know the types of Nylon Monofilament twines and ropes accepted by your Institute for testing and the quantity of the samples to be sent.

CIFT: This Institute can undertake testing of twines and ropes of different materials of breaking strength up to 250 kg. For testing purpose, quantity as given below of the different samples may be sent.

Rope	—	2	Kg
Twine	—	$\frac{1}{2}$	Kg
Yarn	—	$\frac{1}{4}$	Kg



estuaries, rocky foreshores, sand dunes, shingle formations, earth cliffs, rocky cliffs and reclaimed lands.

However because of their location near the land, coastal environments have large amount of nutrients. The nutrient supply, from the land sources combined with the generally shallow water levels is responsible for the diversity and the magnitude of the faunal and floral populations.

Sediments of these areas contain large amounts of water often charged with various salts. Gas also occurs in large quantities in various reservoir sands of beach and barrier islands and inner shelf sands.

Ancient deltaic sediments act as valuable source beds and reservoirs for a large fraction of the known petroleum resources and coal. Estuarine and salt marshes serve as valuable source of sea food and nursing grounds for several oceanic organisms of economic importance.

India has a coastline of 5,680 km. and an area of 3,86,000 sq. km. off-shore areas where the water depth is within 200 meters.

Legally, the land abutting the sea is under the jurisdiction of the State Governments whereas, the waters upto a distance 12 km from the land are the territorial waters. India also

has the right of a 100 km area for exclusive fishing.

Further with the adoption of the idea of 200 nautical miles Exclusive Economic Zone (EEZ) by the Maritime Zone Act of January 15, 1977, India gets the exclusive right for exploring and exploiting the living and non-living resources within this area.

India has extensive areas of sedimentation in the West Indian Ocean which are considered to be potentially rich oil sources.

The oil and Natural Gas Commission has carried out surveys in the Gulf of Cambay, Gulf of Kutch, Coromandal Coast, the Krishna and the Godavari deltas and the Sundarbans and have discovered eighteen structural features which are considered to be geologically favourable for oil exploration.

India's first off-shore oil exploration was at Aliabett off Combay. Bombay High is located about 12 kms north of Bombay.

Explorations are also in progress in other areas, nearer the shore, namely the Cauvery, the Godavari and the Hooghly river basins. It is possible, that all the other river mouths and wide areas of continental shelf will soon be covered for oil exploration.

A potential oil well must have, on the shore, a large complex of supporting ancillary facilities. The pipes to carry crude to the on-shore facilities will have to be laid and the spill containment system developed.

The impact of all these will naturally be felt on the coastal zone and the general ecological niches and spawning areas of fishes and other organisms are bound to be seriously affected.

The extraction of mineral resources of the sea bed is at present receiving serious attention of the Government of India even though no major deposit has yet been reported as a result of the preliminary surveys. When mining of the sea bed is started, its impact on the coast, even though unpredictable, will naturally be tremendous.

The setting up of nuclear and thermal plants near the coast is another source of coastal environmental hazard. The Kalpakkam nuclear energy plant situated south of Madras is fast nearing completion.

The immediate effect of nuclear plants will be on the water environment, by creating thermal pollution. Apart from it, the large intake of water for cooling the towers will trap large masses of planktonic organisms leading to their

total extermination. The fear of radioactive contamination is another danger.

Our marine fishery is fast expanding and soon our export is bound to reach a stage of exploiting the living resources in the 200 mile Exclusive Economic Zone. This vast expansion of our fishery will naturally necessitate the development of on-shore facilities for processing in a big way, thereby creating congestion and possible rivalry with other industries such as shipping and the oil industry.

Another industry where the interests will clash with oil and shipping industries is coastal aquaculture. The expanding demand and high prices of prawns prevailing in the foreign markets to-day have already prompted industrialists to start fish farms along the coastal zone especially near the estuaries, creeks and lagoons.

To relieve congestion at ports like Bombay, Cochin and Madras, we will soon have to establish deep water ports to handle container cargo and other large tonnage ships. This would envisage an increase in small craft traffic, on-shore supply facilities and housing and other complexes for personnel

At present, there is limited dumping in our off-shore waters. Dumping is the disposal of any type of waste including nuclear waste in the coastal waters.

India will have to seriously consider the problem of waste disposal and control the disposal of domestic waste into the sea and maintain strict

security measures against international dumping in our waters.

Practically no consideration has so far been given to the problem of conservation of marine environments of our coastline. There is an urgent need for the establishment of suitable areas for scientific research, recreation and tourism development.

Sand dunes, coral reefs, estuaries, mangroves, sea grass beds beaches and other such coastal habitats play a very important role not only in keeping the ecological balance of the land and the adjacent sea but in preventing large-scale erosion of the coastline.

It is therefore essential that representative areas of the ecosystems are protected through the establishment of marine parks and reserves.

Investigations mainly of a geological and engineering nature are to be intensified along the Indian coast to locate the oil and mineral resources. The extraction of oil and minerals should then be regulated through proper legislation.

This envisages a thorough environmental impact study on the part of the industry, and an act requiring precautionary/preventive/safety measures may be formulated by the government to enable it to issue the necessary permits.

With regard to the management of marine parks and reserves of renewable resources regional management fishery councils will have to be set up rather than individual state councils.

It will be better if the coastal States take the over-all interests of the nation into account while considering comprehensive plans to tackle the problems of management and development of the 200 mile Exclusive Economic Zone.

The coastal zone management programme is of crucial importance. A system of zoning in which a certain area is set aside for a particular major use and other areas are given over to multiple uses should be adopted.

Strict maintenance of some stretches of the coastline in a natural or semi-natural state, exclusively for conservation of habitats, should also receive careful attention.

Categorisation of activities should be evolved in such a way as to avoid conflicting uses of the coastal zone.

A national policy on coastal zone management should be formulated by a multi-disciplinary team. The same team can be constituted into a coastal management task force to formulate a policy to preserve, or restore the coastal zone effectively.

Source: Hindu.



# " GLEANINGS FROM OTHER JOURNALS "

## Fishing with the " Humboldt "

The South American republic of Peru used to be one of the earth's major fishing nations but is currently hard hit by the disappearance of the shoals from its pacific coast: there are now plans however for it to make its catches worthwhile again within a few years. This is the aim of a German-

Peruvian project involving the construction and operation of a research vessel, the "Humboldt", fully equipped with laboratories and surveying facilities. The 76 meter craft is to conduct a complete investigation of Peru's coastal waters. The "Humboldt" is

scheduled to make its maiden voyage this summer. Over all responsibility for the project lies with the Maritime Institute of Peru (Imarpe) in the port of Callao. Bonn has provided a total of DM 20 million for the project.

— SCALA

## Govt. Clears Integrated Fisheries Project

Dr. M. S. Swaminathan, Union Agriculture Secretary, has announced that the Central Government had given its clearance to an integrated five-state project for fresh water inland fisheries development for which a loan was being sought from the World Bank.

Disclosing this at a press conference in Cochin Dr. Swaminathan said that this integrated project which was estimated to cost Rs. 75 crores was being taken up during the Sixth Plan in West Bengal, Orissa, Bihar, Madhya Pradesh and Uttar Pradesh for increasing fish production in the country.

— HINDU

## Work on Neendakara Fishery Harbour soon

Work on the fishery harbour at Neendakara is to commence, according to an official announcement, in the month of November. A

sum of Rs. 2.5 crores has been sanctioned for the purpose.

— HINDU

## Rise in Marine Fish Output

Marine fish production in India rose to 1.40 million tonnes in 1978 from 1.26 tonnes in the previous year, registering an increase of 11 percent according to Central Marine Fisheries Research Institute sources

Other maritime States landed less than 1,00,000 lakh tonnes. All States, except Andhra Pradesh, registered an increase in their total annual landings during the year.

The major components of the landings were: oil sardines, prawns, Bombay duck, scianenids and mackerel.

— HINDU



# CIFT TESTS MARINE ENGINES

The Central Institute of Fisheries Technology have done considerable amount of work in recommending a good number of engines suited to different sizes and types of fishing vessels. Marine engines manufactured in the country have been tested both in the

test bed and under field conditions and drawings for proper installation of these engines and cooling arrangement inside the engine room have been prepared and passed on to the engine manufacturers.

The Indian Standard institution has authorised the CIFT

to conduct the testing of the engines used for fishing vessels (vide I. S. 8013. 1976) and the Institute renders technical help in this direction. On request from the manufactures, the concerned engineers from the Institute are deputed to conduct the test at the test bed in the

---

## Two More Danish Vessels for Fishery Training

Denmark has made available to India two modern fishery training vessels including expertise and equipment under an agreement on technical co-operation between the two countries.

The vessels christened "Skipper two" and "Skipper three" which are both identical, are meant for imparting training in deep-sea fishing.

— HINDU

---

## A Six-point Strategy for Fuel Conservation

The Perkins Engineering Group has proposed a six-point strategy for the conservation of the world's fuel oil resources which it urges government and official bodies worldwide to adopt.

The proposals are:

Existing petroleum-based fuels be conserved by ensuring that their use is confined to automotive applications.

All stationery equipment be powered by traditional forms of energy such as electricity,

gas and coal or by newer developments such as solar energy.

The use of the compression ignition engine and its derivatives be extended using not only petroleum-based fuels but also possible alternatives such as liquid fuels from coal and alcohol fuels.

That the production of wide-cut fuels, obtained by eliminating certain selective refining processes, and suitable for use in diesel engines, be enco-

uraged, thus conserving energy currently wasted by refinery cracking processes.

That the diesel be adapted to make the most efficient use of distillate fuels derived from coal and alcohol fuels when sufficient quantities are available.

That alcohol fuels be initially utilised for blending with gasoline in progressively increasing quantities, thus maximising the proportion of the oil barrel available for diesel and wide cut fuels.

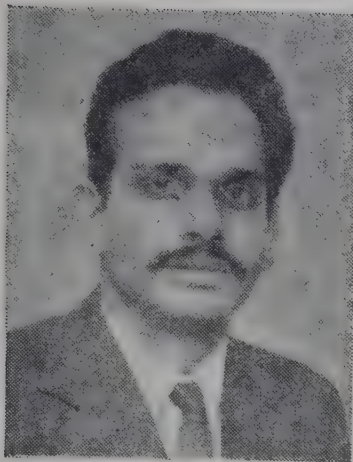
Perkins points out that the diesel is the most efficient and economical way of using available petroleum-based fuels and that the greater amount of basic energy consumed in the process of refining gasoline is itself wasteful.

The internal combustion engine of the future as Perkins sees it, will be a development of the reciprocating piston engine-much as we know it today - but would probably feature additional combustion assistance.

— HINDU



## Dr. K. GOPAKUMAR



Dr. K. Gopakumar is a Scientist - S2 of the Processing Division of CIFT, Cochin. Borne on 14th April 1942 at Muvattupuzha, Ernakulam District,

Kerala State, he matriculated from Government High School Muvattupuzha in first class. Later joined Nirmala College and passed B.Sc in Chemistry in First Class in 1962 and joined University college and took Masters degree in Pure Chemistry in First Class in the year 1964 from the University of Kerala. He was awarded the K. R. Krishna Iyer Gold Medal by the University of Kerala in 1964 for having scored the First Rank in Chemistry. In 1973 he took Ph.D degree in Biochemistry from

the University of Kerala under the guidance of Dr. A. N. Bose, former Director of CIFT, Cochin.

After working for few months as a lecturer in Chemistry in Nirmala College, Muvattupuzha, he joined CIFT in 1964 in the Biochemistry section. He was promoted as Assistant Research Officer in November 1967. He took charge of the post of technologist and Project Leader of ICAR Co-ordinated Project on Utilization of Trash Fish in February 1972 and continued to work in the

factory premises.

The tests are carried out as per IS; 1601 - 1970 which is twelve hours continuous full load test during which the following parametres have to be observed.

- 1) Temperature measurements, both inlet and outlet of cooling water (for water cooled engines) and air (for air cooled engines)
- 2) Temperatures of of Lubrication oil exhaust gas, atmosphere etc.
- 3) Lubrication oil pressure
- 4) RPM of the engine
- 5) Fuel consumption
- 6) Relative humidity
- 7) Lubr-

ication oil consumption for 12 hrs running.

For conducting the above tests the following facilities and instruments are required. Facilities for testing the engines for studying the performance of the engine in the test bed for continuous running for 12 hrs at full rated load at rated rpm.

- Instruments such as
- 1) Thermometer to measure engine exhaust temperature and atmospheric temperature
  - 2) Tachometer to measure engine speed
  - 3) Instruments to measure relative humidity of test site

- (4) Instrument to measure atmospheric pressure of test site
- (5) Instrument to measure oil temperature and pressure and arrangements to measure fuel consumption.

The above mentioned type testing is only a part of the test. The actual performance of the engine is assessed only after field trials by installing the engine on board a fishing vessel for fishing - cum - endurance tests.

# What they have to say about CIFT

I have been very happy to return to CIFT and have the opportunity to see in some detail the very varied and impressive work that is being carried out.

Shri T. A. GULLARD,  
Dept. of Fisheries,  
FAO, Rome

One of the best in the Country. The atmosphere, cleanliness, discipline and its research impressed me very much, the credit of which goes to the Director and his team of Scientists

Shri SUJAN SINGH, M. P.

I was happy to go round the Institute and was much impressed with the work being done here.

Shri VAIDYANATHAN  
Joint Secretary,  
Govt. of India



same capacity until March 1979 when the project was finally closed. Subsequently Dr. Gopakumar was transferred to the Processing Division and is working in the project on diversified fish products.

Over the years Dr. Gopakumar has served in the fields of fishery Bio-chemistry, Fish Processing, Fish Transportation and its Utilization. While he was in the Biochemistry section he made significant contribution in the field of lipid technology particularly in marine lipids and then changes in processing and chilled storage. As the project leader of the project on Utilization of Trash Fish he was chiefly responsible for the development of speci-

ality products like fish wafers, fish soup powder, fish hydrolysates, pet foods etc. Some of them are now being manufactured and marketed by small scale industrialists. He has published over thirty scientific and technical papers, in leading national and international journals in food science.

In 1973 he was made a fellow of the Oil Technologists Association of India. In 1973 Dr. Gopakumar was elected a fellow of the Institution of Chemists India for his significant contribution in marine oils.

Dr. Gopakumar has served as a member of several docto-

ral committees in the Universities of Cochin and Kerala. He has adjudicated M. Sc., M. F. Sc. and Ph. D theses from several Universities. Dr. Gopakumar is an approved guide for Ph. D degree in Chemistry, Bio-chemistry, Food Technology and Marine Sciences in the Universities of Kerala, Jadavpur and Cochin and a number of students are at present working under him in the above Universities.





## CIFT is at your Service

*It transfers Fishery Technology by way of:*

- Demonstrations of Fishing and Fish Processing techniques evolved by it
- Answering Technical queries
- Supplying project reports and design drawings
- Training courses on fishing and fish processing

*Please contact*

Director,  
C. I. F. T.,  
Matsyapuri P. O.,  
Cochin - 682029.







# Fish technology newsletter

Vol. II No. 4 OCTOBER 1979



A 38'- OAL traditional Malabar built-up Canoe mechanized with an indigenous inboard - outboard drive has been put to tests and trials by CIFT (Text page 18)



CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY  
MATSYAPURI P. O.

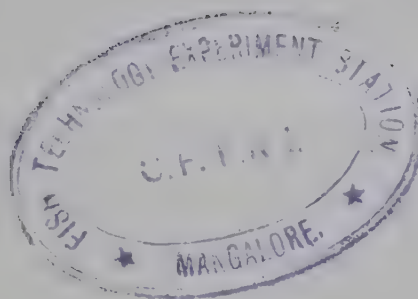
COCHIN - 6820

## CONTENTS

	Page
1. Foreword	3
2. A Quality Control Laboratory	4
3. Beach Landing Catamaran Fishing Boats	6
4. Ready to Serve Pickle from Mussel Meat	7
5. Let's Talk it over	8
6. Meet our Scientists	17
7. Gleanings from other Journals	19



# Foreword



## EDITORIAL COMMITTEE

Shri R. BALASUBRAMANYAN  
*Chairman*

Shri K. C. PURUSHOTHAMAN  
*Secretary*

Shri P. MADHAVAN  
*Member*

Dr. P. N. KAUL  
*Member*

Fish Technology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

Photography Shri K. BHASKARAN

Art Shri G. MOHANAN

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Abbreviation : *Fishtech News*

Editorial Committee.

# A QUALITY CONTROL LABORATORY FOR SEAFOOD PROCESSING PLANT

Quality Control in the seafood industry is a must in order to create, maintain and continuously improve the product image. As is practiced today in our country, it is mainly carried out by Governmental agencies like the Export Inspection Agency through its compulsory Preshipment Inspection, the Central Institute of Fisheries Technology through its Quality Control Section and the Marine Products Export Development Authority through its field staff. The part played by the industry itself is limited the physical and sensory aspects of quality of raw materials and products are looked after by them to some extent. Only very few of the processing establishments have a quality control laboratory. This is mainly due to very small size of the processing unit, lack of permanent stake in the business and the availability of such facilities on easy terms in the governmental agencies. However, in the recent years there are occasional enquiries on the cost involved and items required to establish a quality control laboratory in the seafood processing units. Also, there has been a suggestion to replace the present Compulsory Preshipment Inspection by a self-inspection system for factories

having facilities and personnel for such work. It is also advisable that routine problems related to quality are handled in the factory itself by its own quality control personnel and that only problems of a more serious nature requiring expertise and sophisticated facilities be referred to the governmental agencies. This write-up, it is hoped, will largely satisfy the requirements of a laboratory for routine quality control work.

## Scope of the laboratory

In the present set up of the industry in our country, the major items that have to be tested in the quality control laboratory are: raw materials, finished products (frozen & canned), miscellaneous items like bleach liquor, detergents and fish meal. The characteristics to be tested can broadly be divided into four categories; viz., physical, chemical, bacteriological and sensory. Physical characteristics relate to size, weight, etc. Chemical characteristics require the estimation of sodium chloride and acidity in the brine of canned products; moisture, protein, sodium chloride, fat and acid insoluble ash in fish meal and chlorine content in bleach liquors.

Microbiological requirements necessitate the determination of total plate count, counts of *E. coli*, coagulase positive staphylococci, faecal streptococci and tests for salmonella and commercial sterility. Sensory evaluation relates to factors like spoilage, discolouration, material appearance, colour, odour, texture and flavour. A quality control laboratory attached to a seafood processing factory shall have facilities and personnel to carry out the aforesaid tests.

## Staff requirements

A quality controller and a laboratory assistant are the minimum staff required. The Quality Controller shall be a graduate or post graduate in Industrial Fisheries/ Fisheries/ Food Technology/ Science basic to fisheries and shall have some experience in processing and quality control. The laboratory Assistant shall be a matriculate with some experience in seafood analysis.

## Location

The laboratory shall be kept separated from the processing area so that fumes, odours etc. from the laboratory do not contaminate the product. However, easy access to



the processing plant is a must. As far as practicable the area shall be free from foul odours, dust, too much noise etc.

### **Space requirements**

An area of 20 Sq. m is reasonably sufficient for the laboratory. It is preferable to have it divided into 2 to 3 separate rooms to accomodate the various categories of tests. Water and electricity shall be available.

### **Furniture, equipments, glasswares and chemicals**

Working tables with attached washing sinks, almirah to store chemicals, drying rack, office table, chairs etc. are the usual pieces of furniture required.

Air ovens, incubators, sterilizer, balances, water bath, arrangement for burners (L.P.G. gas Cylinder & bunsen burners), etc. are the major equipments required.

Glass wares like petridishes, test tubes, graduated pipettes, burettes, conical flasks, beakers, measuring cylinders, funnels, crucibles, microkjeldal distillation apparatus,

digestion flasks, soxhlet extraction apparatus etc. are usually required.

Miscellaneous items like filter paper, tripod stand, pipe clay triangle, wire gauge, rubber tubing, inoculating needles etc are also required.

Chemicals required to carry out routine chemical estimations are silver nitrate, potassium chromate, sodium hydroxide, phenolphthalein, Sodium thiosulphate, acetic acid, potassium iodide, soluble atarch etc. For microbiological work items like agar agar, peptone, tryptone, different sugars, bile salts, sodium thiglycollate, some dayes and indicators etc. are essential.

### **Capital Involved for aQC laboratory**

The total investment for a laboratoy which can handle all the items as described earlier is estimated to be Rs. 71, 000/- of which Rs.44,000/- is for equipment, glasswares, chemicals and the rest for building and furniture. Details of Capital required are shown in Table I.

### **Recurring expenditure**

For a freezing plant working for 25 days a month the cost of laboratory work, works out to Rs.5,300/- for a canning plant it is Rs.1,200/- and for a fish meal plant Rs.1,125/-. These costs cover cost of chemicals, gas, electricity and water. A further amount of Rs.1,500/- is to be met as salary to the Quality Control Staff. Details of recurring expenditure are shown in Table II.

### **Conclusion**

The capital outlay of Rs.71,000/- is generally not with in the capacity of individual, small and medium sized processing plants. Hence a cooperative effort may have to be made by such processors to establish their common laboratory facility. Further, it is advisable that the recurring cost does not exceed 1% of turnover.

*(Continued on page - 10)*

# BEACH LANDING CATAMARAN FISHING BOATS

## An Alternative to Harbour Construction

Intermediate Technology Industrial Services (ITIS) is undertaking a joint venture in co-operation with a government body and the private sector to test a new design of fishing boat (the "Sandskipper") which can operate successfully under monsoon conditions in Sri Lanka. Primary funding for the project is coming from the Ceylon Fishery Harbours Corporation (CFHC) and ITIS with local expenses and support being provided by the Wennappuwa Fishing Co-operative and two privately owned companies, Williamson Ltd. and Hemachandra Ltd., (Kandy).

At present the annual fish catch in Sri Lanka is around 160,000 tons. It is proposed to increase this catch to about 300,000 tons by 1982. If this target is to be met, larger vessels such as trawlers must be included in the fleet. Such boats, however, need harbours to protect them against the monsoon. There is a shortage of suitable harbours in Sri Lanka and it has been estimated that the cost of building the necessary harbours around the coast would be more than 200 million Rupees (£6 million). CFHC has recognised that if a beachlanding boat can operate successfully under monsoon con-

ditions, its introduction could significantly reduce the requirement for new harbours. With this in mind, a request for assistance was made to ITIS in July 1979.

The Sandskipper designer, Sh. E. W. Gifford, has already worked with ITIS on a fishing dory project (79/111) in Sri Lanka. This second design for a 24 foot catamaran fishing boat is particularly suited to the needs of a beachlanding craft because the twin hulls provide the necessary stability both in the surf and on land. The large deck between the hulls is also useful providing a space for handling fishing nets.

Both the fishing dory and now the Sandskipper are being constructed in Sri Lanka with marine plywood using the stitch and glue method of assembly. This involves wiring sections of the boat together, sealing the seams with epoxy resin and covering them with terylene webbing. After the resin has set the wires are cut and a finish is applied. This system enables the boat to be assembled from kits in small decentralised workshops without the need for sophisticated equipment. A high degree of skill

is not required. It is anticipated that the Sandskipper and the dory will compliment each other, building on the skill established during the first project and creating sufficient demand to justify local manufacture of marine plywood. The Sandskipper project involves sending one complete prototype, with a Petter lightweight diesel engine and a set of templates, from the UK. Sh. Gifford, assisted by a shipwright, will then oversee the construction of three more boats in the CFHC workshops. During this period, trials to test the landing, fishing and beaching aspects of the craft will be carried out. The intention is that part of the trials take place during the south west monsoon to test the boats in the surf.

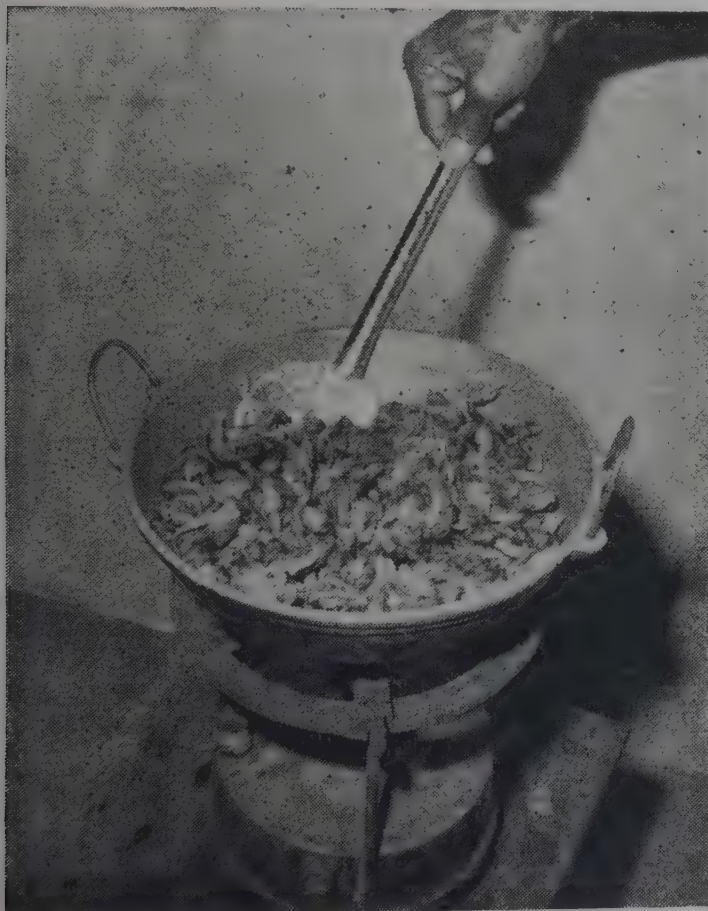
The Sandskipper offers Sri Lankan fishermen some unique advantages in that the nearest available equivalent, a 28 foot timber or fiberglass boat of conventional design, has no beach landing capability and costs, with engine, about a third more than the Sandskipper's target price. Also, use of the sail will enable the latter to operate at a lower running cost and function when fuel is unobtainable.



# READY - TO - SERVE PICKLE FROM MUSSEL MEAT

## Recipe

Mussel meat	: 1 Kg.
Refined salt	: 80.0 gms. dissolved in 400 ml. water.
Chilly powder	: 75.0 gms.
Turmeric powder	: 2.5 gms.
Green chillies (sliced)	: 20.0 gms.
Ginger (sliced)	: 20.0 gms.
Garlic (crushed)	: 10.0 gms.
Curry leaves	: 5.0 gms.
Mustard (skinned)	: 10.0 gms.
Gingelly oil	: Approx. 200 ml. for frying the meat and con- diments.
Vinieggar (Natural-acetic acid content about 4%)	: 200 ml.



*Frying of Mussel Meat*

## Method

### 1. Preparation of Meat :

Meat is shucked from clean mussels in the live condition itself (without heating the shell-on mussels to open them up). The extracted meat is washed very well to free it from shell grit and debris.

### 2. Blanching of the Meat:

The meat is blanched in boiling brine prepared by dissolving 50 gms. of refined salt in 750 ml. of water for every kilogram of meat. The blanching time is 5 minutes of reboiling of the whole mass. The blanched meat is kept for draining well.

### 3. Cutting of the Meat into pieces :

Individual pieces of the blanched meat are cut into 4 portions after cutting off and discarding the gut portion.

### 4. Frying of the Meat :

The meat pieces prepared as above are fried in gingelly oil until brown in colour and kept apart.

### 5. Frying of the condiments and mixing :

Sliced green chillies, ginger

# LET'S TALK IT OVER

## M's. Hindustan Lever Ltd., Bombay

What are the main advantages of the conveyer type prawn processing table designed and developed by CIFT.

CIFT: The material (prawns) as well as waste move to and from the individual worker continuously and as such there is considerable saving in time and labour. There is maximum utilization of labour since the worker cannot remain idle with the constant supply of raw material.

Another advantage is that assorted whole prawns can be fed in the hopper and while peeling there will be automatic size gradation. Big size prawns can be handled by the worker at the fore-end of the table. No separate labour for sorting and size gradation are required. Waste can be dumped in the dumping ground by proper modification of the table directly.

Again, the table ensures hygienic peeling of prawns. Inplant quality control can be very well maintained.

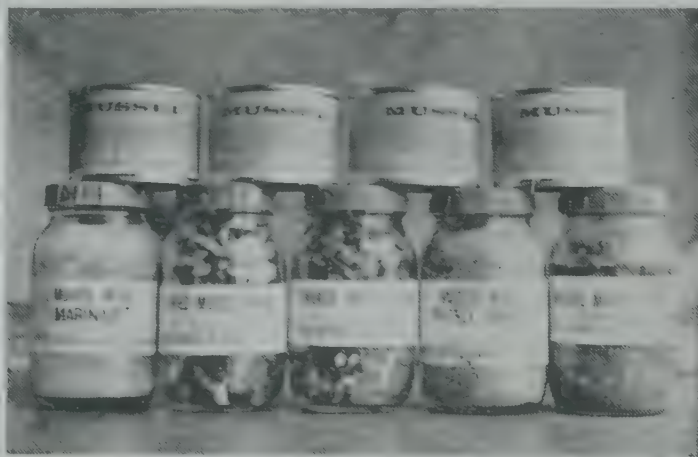
## M's. Kauecha & Company, Porbandar

What are the prospects of using dry ice for fish preservation in our country?

CIET: This institute has done some preliminary investigations on the use of dry ice for fish freezing/ cooling. Theoretically dry ice should be an ideal refrigerant for fish preservation as it has got very high latent heat : 136.7K Cals/kg. , 3 times refrigeration capacity than plain ice, compact, non-dripping and inert atmosphere etc. But



*Opened live Mussel*



*Mussel Products*

curey leaves and crushed garlic are fried in the residual oil remaining in the pan after frying the meat. When they are nearly brown in colour, the chilly powder, turmeric powder and skinned mustard are added and again fried for

a short while. The salt solution is added to this and the mixture brought to boil. The pan is removed from the fire, the fried meat is added and mixed thoroughly. After sufficient cooling, the vinegar is added and again mixed well.

### 6. Packing ;

The pickle is filled in bottles of convenient sizes and labelled suitably.





# FISH PRODUCTS COLLABORATION

## WITH U. K. PROPOSED

India and the United kingdom are to collaborate in the development of fish products.

Shri G.K. Kuriyan, Director

of the Central Institute of Fisheries Technology made preliminary discussion with the Director, Tropical Products Institute at London. This was

under the training arrangement agreed to by the Government of U.K (DDA) and Ministry of Agriculture.

\*\*\*

with all these properties, dry ice is not considered very ideal for fish preservation for the following reasons:

1) Dry ice is very cold and hence can not be used in direct contact with fish just like ordinary ice. If used, 'freezer burn' may take place.

2) Even if dry ice is used, because of its non-dripping property, uniform cooling is never achieved and ice to fish contact gets separated soon.

3) Economically, it is 20-40 times as costly as plain ice and is not freely available everywhere. It is also difficult to produce when compared to plain ice.

Technically, dry ice can be used for cooling refrigerated fish vans in place of mechanical systems. Such vans have, however, not been developed so far in India. As such, for all these reasons, there does not appear to be much prospect of use of dry ice for fish preservation in our country, atleast for the present.

**Ms Hindustan Lever Ltd. Bombay**

It is learnt that CIFT

## Appointments, Promotions, Transfers

S/ Sh. Gopal Chandra Adhikari and Satish Chandra B. Purohit were appointed as Junior Clerks at Burla and Veraval Research Centres respectively.

Shri Radhu Pande, S. S. Grade III, Burla Research Centre was promoted as Driver (Launch) on adhoc basis.

Smt. Rani Mary Jacob, Scientist SI, CIFT Cochin, was transferred to Central Marine Fisheries Research Institute, Vizhinjam.

Sh.M.P.Chandrasekharan, Superintendent, rejoined CIFT after working for some time at CTCRI, Trivandrum.

~

has developed a remote sensing freezer temperature alarm. We would like to know some of the details of this instrument. CIFT: This instrument measures the temperature of the freezer and displays the same at a

### Features

Temperature range	: +30°C to -40°C ( other ranges can be provided)
Accuracy	: + 1% of the range
Distance between the freezer and the display point	: upto 2km
Power supply	: 220 VAC
Meter size	: 30x 12x 20cms
Current consumption	: Less than 46ma at 6V
Two models are available with alarm and without alarm	
Approximate cost	: Rs. 3,000/-without alarm Rs. 5000/- with alarm

remote and convenient place. An alarm has been provided to indicate a change of temperature from its present value. The information can also be fed to continuous recorders for permanent records.

Table I

Capital involved for a quality control laboratory (in Rs.)

	For all the plants together	For freezing plant only	For canning plant only	For freezing & canning plants together	For fish meal plant only
Building	18000	18000	18000	18000	18000
Furniture	8850	8850	8850	8850	8850
Equipment	26760	19250	14160	19460	12750
Glasswares and Miscellaneous	11590	8653	5618	8813	6435
Chemicals	5896	5259	1262	5533	733
<b>Total</b>	<b>71096</b>	<b>60012</b>	<b>47890</b>	<b>60656</b>	<b>46768</b>

Table II

Recurring Expenditure

	No. of samples to be taken		Cost of chemicals, gas electricity & water (in Rs.)		
	per day 1	per week 2	per day 3	per week 4	per month 5
<b>For Freezing plant</b>					
1. Bacteriological analysis excluding Salmonella & Shigelle of water	1		$1 \times 8 = 8$		$8 \times 25 = 200$
2. " " of ice	1		$1 \times 8 = 8$		$8 \times 25 = 200$
3. Bacteriological analysis including Salmonella & Shigell of incoming raw material	5		$5 \times 18 = 90$		$90 \times 25 = 2250$
4. " " of frozen product	5		$5 \times 18 = 90$		$90 \times 25 = 2250$
5. Sanitary survey (minimum 12 samples)		12		$12 \times 8 = 96$	$96 \times 4 = 384$
6. Estimation of chlorine in bleach liquor		2		$2 \times 1 = 2$	$2 \times 4 = 8$
<b>Total</b>					<b>= 5292</b>

**For canning plant**

1. Total plate count of can cooling water	1	$1 \times 3 = 3$	$3 \times 25 = 75$
2. Chlorine level of can cooling water	1	$1 \times 1 = 1$	$1 \times 25 = 25$
3. Acidity and Sod. chloride content in bleaching liquor	2	$2 \times 1 = 2$	$2 \times 25 = 50$
4. " " in filling brine	2	$2 \times 1 = 2$	$2 \times 25 = 50$
5. Commercial sterility at 37° C of finished product	5	$5 \times 2 = 10$	$10 \times 25 = 250$



From table II

	1	2	3	4	5
6. Commercial sterility at 56° C of finished product	5		$5 \times 2 = 10$		$10 \times 25 = 250$
7. Cans for product quality	5		$5 \times 1 = 5$		$5 \times 25 = 125$
8. Sanitary survey minimum (12 samples)		12		$12 \times 8 = 96$	$96 \times 4 = 384$
9. Estimation of chlorine in bleach liquor		2		$2 \times 1 = 2$	$2 \times 4 = 8$
				Total	= 1217

### For fish meal plant

1. Chemical analysis (Moisture, fat, protein, acid insoluble ash and salt) of fish meal	3		$3 \times 15 = 45$		$45 \times 25 = 1125$
---	---	--	--------------------	--	-----------------------

### Salary of Staff

1. Quality Controller	Rs. 1000/- per month
2. Laboratory Assistant	Rs. 500/- per month

### ANNEXURE - 1

FURNITURE	Quantity	Cost	Remarks
1. Work table made of hard wood (size suitable to the room with drawers, cupboards and shelf)	3 Nos.	Rs. 4500.00	A
2. Almirah with glass doors	1 No.	Rs. 800.00	A
3. Office table and two chairs	1 „	Rs. 1000.00	A
4. Laboratory stool	1 „	Rs. 100.00	A
5. Drying rack	1 „	Rs. 200.00	A
6. Wash basin, large	1 „	Rs. 250.00	A
7. Sink with accessories-attached to work table	3 „	Rs. 2000.00	A

EQUIPMENT	Quantity	Cost	Remarks
1. Air Oven, temperature 100-200°C	1 No.	Rs. 2500.00	B
2. Air Oven, adjustable between 100-105°C	1 „	Rs. 2500.00	D
3. Incubator, adjustable to 37°C	1 „	Rs. 3500.00	B & C
4. Incubator, adjustable to 42 and 56° C	1 „	Rs. 3500.00	B & C
5. Sterilizer ( autoclave )	1 „	Rs. 1200.00	B & C
6. Distilled water still	1 „	Rs. 2000.00	A
7. Vaccum pump with motor	1 „	Rs. 2000.00	B
8. Analytical balance, 200 gm. capacity with weight box	1 „	Rs. 2500.00	A
9. Two pan balance, to weigh 2 kg with weights from 1 kg to 1 g	1 „	Rs. 300.00	B & C
10. Muffle furnace adjustable between 400-1000° C	1 „	Rs. 2500.00	D
11. Petroleum or cooking gas cylinder with 3 bunsen burners	1 „	Rs. 700.00	A
12. Seitz filter	1 „	Rs. 500.00	B
13. (a) Microkjeldal digestion set ( for 6 flask ) with 500 ml digestion flask, complete with stand, heaters, absorption arrangement for acid fumes (b) Microkjeldal distillation unit	1 „	Rs. 1000.00	D
14. Vaccum gauge	1 „	Rs. 300.00	D
15. Can opener	1 „	Rs. 200.00	C
16. Hot plate/Kerosene stove	1 „	Rs. 10.00	C
17. Dessicator cabinet	1 „	Rs. 250.00	A
18. Water bath to hold 6 flasks electrically heated	1 „	Rs. 300.00	B
	1 „	Rs. 1000.00	D

## ANNEXURE - 3

## GLASSWARES AND MISCELLANEOUS

1. Petri dishes, corning 17 X 100mm	2 gross	Rs. 4000.00	B
2. Sample dishes, corning	3 doznes	Rs. 350.00	B
3. Test tubes corning 18 X 150 mm	2 gross	Rs. 400.00	B & C
4. Test tubes corning 12 X 100 mm	1 „	Rs. 125.00	B
5. Pipettes, 1 ml. eapacity, 0.1 ml. graduation, corning	1 „	Rs. 1250.00	B & C
6. Pipettes, graduated to 0.1 ml divisions, 5 ml capacity	1 doz.	Rs. 125.00	B
7. Pipettes graduated to 0.1 ml divisions, 10 ml capacity	2 doz.	Rs. 300.00	A



	Quantity	Cost	Remarks
8. Bulb pipettes 25, 20, 10 & 5 ml capacity	3 Nos. each	Rs. 345.00	
9. Burette 25 ml capacity	2 Nos.	Rs. 100.00	A
10. Microburette 10 & 5 ml capacity	2 Nos. each	Rs. 200.00	A
11. Conical flasks, corning			
2 L. capacity	6 Nos.	Rs. 180.00	B
1 L.     ,,	6 Nos.	Rs. 100.00	B
250 ml.   ,,	50 Nos.	Rs. 400.00	A
150 ml.   ,,	1 gross	Rs. 1100.00	B
100 ml.   ,,	2 doz.	Rs. 130.00	A
12. Measuring cylinders			
1 L. capacity	2 Nos.	Rs. 175.00	B
500 ml   ,,	2   ,,	Rs. 126.00	A
250 ml   ,,	2   ,,	Rs. 95.00	A
100 ml   ,,	2 doz.	Rs. 720.00	A
13. Beakers, corning 2 L, 1 L, 500 ml. & 250 ml capacity	2 Nos. each	Rs. 130.00	A
14. Standard volume flask 250 ml & 100 ml capacity	3 Nos. each	Rs. 135.00	A
15. Funnels, corning 15 cm dia.	3 Nos.	Rs. 60.00	B
16. Funnels, corning 10 cm dia	6   ,,	Rs. 90.00	C
17. Funnels, corning 175 cm dia.	6   ,,	Rs. 75.00	A
18. Durhom tubes	6 doz.	Rs. 75.00	B
19. Thermometer upto 100°C	2 Nos.	Rs. 60.00	A
20. Thermometer upto 360°C	2   ,,	Rs. 60.00	A
21. Watch glass ( assorted size )	6 Nos.	Rs. 60.00	A
22. Mortar and pestle, glass, to hold 150 - 200 ml water	1 doz.	Rs. 75.00	B
23. Seitz filter pad	50 Nos.	Rs. 100.00	B
24. Filter paper Whatman No. 1 & 40	1 packet each	Rs. 200.00	D
25. Spirit lamp	2 Nos.	Rs. 20.00	A
26. Glass tubes	1 M	Rs. 25.00	A
27. Glass rod	1 M	Rs. 25.00	A
28. Slotted aluminium baskets	6 Nos.	Rs. 75.00	B
29. Wire gauze	6 Nos.	Rs. 12.00	A
30. Inoculating needles	3   ,,	Rs. 30.00	B
31. Cotton, non-absorbant	10 kg	Rs. 60.00	B & C
32. Cotton, absorbant	10 kg	Rs. 60.00	B & C
33. Wash bottle 1 L. polythene	2 Nos.	Rs. 20.00	A
34. Wash bottle 500 ml polythene	2   ,,	Rs. 15.00	A

	Quantity	Cost	Remarks
35. Test tube brush	6 Nos.	Rs. 10.00	A
36. Nickel spatula	3 "	Rs. 30.00	A
37. Iron stand with clamps	3 "	Rs. 75.00	A
38. Propipetter	3 "	Rs. 75.00	B
39. Glass marking pencil	2 doz	Rs. 25.00	A
40. Soxhlet extraction apparatus	6 units	Rs. 1450.00	A
41. 250 ml round bottomed flask with quickfit neck to be connected with soxhlet apparatus	6 Nos.	Rs. 150.00	D
42. Asbestos thimble 25 ml capacity	24 "	Rs. 50.00	D
43. Silica crucibles with lid	6 "	Rs. 900.00	D
44. Tripod stand	3 "	Rs. 10.00	A
45. White porcelain tiles	3 "	Rs. 5.00	A
46. Clony pipe triangle	12 "	Rs. 12.00	D
47. Towels	5 "	Rs. 10.00	A
48. Rubber tubing 10 mm	10 M	Rs. 40.00	A
49. Pipette stand plastic	1 No.	Rs. 25.00	A
50. Tongs	3 Nos.	Rs. 15.00	D
51. Hand lens	1 No.	Rs. 30.00	B & C
52. Dessicator ( Glass )	1 No.	Rs. 250.00	A
53. Cutting player	1 No.	Rs. 10.00	D
54. Reagent bottles, 500 ml capacity	2 doz.	Rs. 100.00	A
55. Indicator bottles, 100 ml capacity	6 doz.	Rs. 25.00	A
56. Can seam measuring scale Micrometer screw gauge	1 No.	Rs. 60.00	C

#### ANNEXURE - 4

#### CHEMICALS

	Quantity	Cost	Remarks
1. Agar agar. Shreds powder for bacteriological work	1 kg	Rs. 250.00	B
2. Beef extract, (Oxoid Difco)	500 g	Rs. 190.00	B & C
3. Tryptone. (Difco)	500 g.	Rs. 150.00	B
4. Proteose peptone No. 3 (Difco)	500 g.	Rs. 250.00	B
5. Yeast extract (Difco)	500 g.	Rs. 300.00	B & C
6. Peptone (Difco)	500 g	Rs. 106.00	B & C
7. Bile salts (Difco)	500 g	Rs. 170.00	B
8. Bile salts No. 3 (Difco)	100 g.	Rs. 395.00	B



9. Dextrose, A. R.			
10. Potassium dihydrogen phosphate A. R.	500 g.	Rs. 22. 00	B & C
11. Sodium glycerophosphate A. R.	500 g.	Rs. 36. 00	B
12. Maltose, A. R.	500 g.	Rs. 300. 00	H
13. Lactose A. R.	500 g.	Rs. 260. 00	H
14. Sodium azide	500 g.	Rs. 36. 00	H
15. Sodium chloride A. R.	100 g.	Rs. 100. 00	B
16. Sodium carbonate A. R.	4 X 500 g.	Rs. 50. 00	B & C
17. Tergitol-7	500 g.	Rs. 171. 00	A
18. Lithium chloride (anhydrous)	100 ml.	Rs. 25. 00	B
19. Sulphamezathine	500 g.	Rs. 120. 00	H
20. Glycine A. R.	10 g.	Rs. 35. 00	B
21. Potassium tellurite	500 g.	Rs. 100. 00	B
22. Sodium pyruvate	100 g.	Rs. 100. 00	B
23. L-Cystine	100 g.	Rs. 240. 00	H
24. Disodium hydrogen phosphate A. R.	25 g.	Rs. 40. 00	B&C
25. Sodium acid selenite	500 g.	Rs. 25. 00	B
26. Sodium thiosulphate A. R.	100 g.	Rs. 100. 00	B
27. Iodine (sublimed, pure)	500 g.	Rs. 19. 00	A
28. Potassium iodide A. R.	25 g.	Rs. 10. 00	B
29. Sucrose A. R.	100 g.	Rs. 26. 00	A
30. Sodium citrate A. R.	500 g.	Rs. 43. 00	B
31. Ferric citrate A. R.	500 g.	Rs. 55. 00	B
32. Ferrous sulphate G. R.	500 g.	Rs. 25. 00	B
33. Bismuth sulphite	500 g.	Rs. 18. 00	B
34. L-Lysine A. R.	100 g.	Rs. 100. 00	B
35. Ferric ammonium citrate A. R.	25 g.	Rs. 17. 00	B
36. Urea A. R.	500 g.	Rs. 50. 00	B
37. Ammonium sulphate A. R.	500 g.	Rs. 24. 00	B
38. Dipotassium phosphate A. R.	500 g.	Rs. 27. 00	B
39. Sodium malonate	500 g.	Rs. 35. 00	B
40. p-dimethylamino benzaldehyde	100 g.	Rs. 125. 00	B
41. Amyl alcohol A. R.	25 g.	Rs. 25. 00	B
42. Hydrochloric acid A. R.	500 ml	Rs. 25. 00	B
43. L-Naphthal	500 ml.	Rs. 57. 00	A
44. Potassium hydroxide	500 ml.	Rs. 15. 00	A
45. Sodium hydroxide	100 g.	Rs. 90. 00	B
46. Sodium ammonium phosphate A. R.	500 g.	Rs. 38. 00	B
47. Magnesium sulphate A. R.	500 g.	Rs. 15. 00	A
48. Glacial acetic acid A. R.	500 g.	Rs. 25. 00	B
49. Soluble starch A. R.	500 g.	Rs. 13. 00	B
50. Phenolphthalein	500 ml.	Rs. 21. 00	A
51. Bromocresol purple	500 g.	Rs. 21. 00	A
52. Methyl violet	500 g.	Rs. 57. 00	A
53. Brilliant green	10 g.	Rs. 2. 00	A
54. Phenol red	5 g.	Rs. 50. 00	B
	5 g.	Rs. 7. 00	B
	5 g.	Rs. 10. 00	B
	5 g.	Rs. 18. 00	B

55. Neutral red	5 g.	Rs. 15.00	B
56. Crystal violet	5 g.	Rs. 4.00	B
57. Bromothymol blue	5 g.	Rs. 30.00	B
58. O-tolidine	25 g.	Rs. 90.00	A
59. Pot. chromate A. R.	500 g.	Rs. 25.00	C&D
60. Silver nitrate A. R.	25 g.	Rs. 70.00	C&D
61. Salicine	10 g.	Rs. 350.00	B
62. Dulcitol	10 g.	Rs. 30.00	B
63. Gelatine	500 g.	Rs. 45.00	B
64. Mannitol	500 g.	Rs. 190.00	B
65. Triphenyl Tetrazolium chloride	5 g.	Rs. 65.00	B
66. Alcohol (Rectified spirit)	1 L.	Rs. 10.00	A
67. Dettol	110 ml.	Rs. 3.00	A
68. Oxalic acid A. R.	500 g.	Rs. 29.00	C
69. Resazurin tablets	50 nos.	Rs. 50.00	C
70. Thioglycollic acid - Sodium	100 g.	Rs. 100.00	C
71. Copper sulphate A. R.	500 g.	Rs. 30.00	D
72. Pot. sulphate A. R.	500 g.	Rs. 49.00	D
73. Methylene blue	25 g.	Rs. 24.00	D
74. Methyl red	5 g.	Rs. 8.00	D
75. Methyl orange	25 g.	Rs. 22.00	D
76. Boric acid A. R.	500 g.	Rs. 20.00	
77. Petroleum ether A. R. (50-60°C)	500 ml.	Rs. 20.00	D
78. Pot. dichromate A. R.	50 gm.	Rs. 20.00	D
79. Nitric acid	500 ml.	Rs. 40.00	D
80. Sulphuric acid	500 ml.	Rs. 50.00	D
81. Ferric alum A. R.	500 g.	Rs. 40.00	D
82. Ammonium thiocyanate A. R.	500 g.	Rs. 5.00	B&C

Note : D - required for lab in fishmeal plant only  
C - " canning plant only  
B - " freezing plant only  
A - " in all plants.

### Books recommended :

1. Horwits, William 1975: Official Methods of Analysis, Association of Official Analytical Chemists, Washington.
2. Indian Standard Specifications (for exported seafood items).
3. Herschdoerfer S. H. 1967-68. Quality Control in the Food Industry. Vol. I & II Academic Press London.
4. Kreuzer, Rudolf 1971. Fish Inspection and Quality Control. Fishing News (Books) Limited, London.
5. Anon 1979. Quality Control in Fish Processing, Central Institute of Fisheries Technology, Cochin.



## CYRIAC MATHEN



Shri Cyriac Mathen, Scientist S-2, is in charge of the Quality Control Laboratory at CIFT, Cochin. Born in 1940 in Alleppey District, he had his education up to school leaving stage in his native village. He studied at St. Be-

rchman's College, Changanacherry and got his B. Sc Degree in Chemistry in 1960. He took his Msc Degree from the Vikram University, Ujjain, in the year 1962.

Shri Mathen joined CIFT in 1962 as Research Assistant. Later on he got selected to higher posts-Assistant Research Officer, Quality Control Officer and Fishery Scientist. He was inducted to Agricultural Research Service from 1975.

He had his advanced, training in Fishery Technology, Processing and Quality Control in Norway for one year under the Norwegian Agency for International Development. In 1978 he was deputed to attend the FAO/DANIDA work shop

on Fish Technology and Inspection held in Colombo.

Shri Mathen's favourite fields of work are Sea Food Processing, Quality Control and training of Industrial personnel from Industry. His major contributions are phosphate treatment for frozen and cured products, prevention of blackening of prawns, methods for production of frozen froglegs cooked and frozen prawns-all of industrial significance.

Shri Mathen was closely associated with Preshipment Inspection in the early stage of the scheme under the late Dr. V. K. Pillai. He has forty publications to his credit in the above fields.

---

## XVth International Congress of Refrigeration

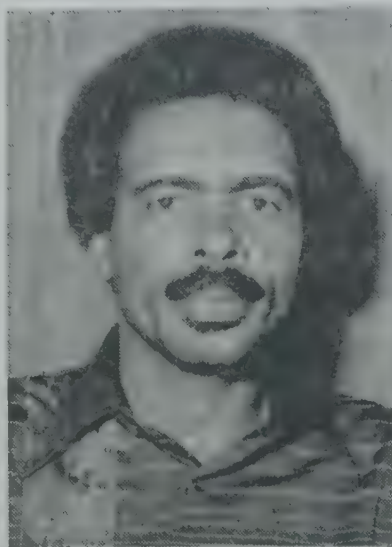
The experiments conducted by the Central Institute of Fisheries Technology, Cochin and other organisations on the design and developments of refrigerated sea water plant for small fishing vessels have been prescribed in detail in a paper prepared by Shri S. Ayyappan Pillai, Scientist of the Central Institute of Fisheries Technology, Cochin.

The paper entitled "Developments in the Chilling and Freezing on board fishing vessels in India" was presented by F A O Fishery Industry Officer, Shri Lisac, on behalf of Shri Pillai at the XVth International Congress of the Refrigeration held at Venice in September, 1979. It was organised by the International Institute of Refrigeration, Paris.

The author has described the various methods of chilling and freezing of fish employed on board fishing vessels in India. The paper discussed and appreciated by the Congress has now been published in the proceedings of the Congress.



## Training Under I T E C Programme



*Mr. Mitford John*



*Mr. Indra Paul*

Two Guyanese Scholars, Mr. Mitford John and Mr. Indra Paul, have completed their nine-month training course on Fish Processing Technology at CIFT, Cochin. The Training was arranged by the Government of India under the Indian Technical and Economic Cooperation (ITEC) programme.

They have joined their parent organisation, Guyana Food Processors Ltd, from where they were nominated by the Government of Guyana.

The training was mainly on fish by products and waste utilization, artificial drying of fish including solar drying and accelerated freeze drying and determination of quality of processed fish products.

## MOTORIZATION OF A MALABAR FISHING CANOE

Run-in tests of the 9.5HP Lombardini engine along with the newly developed gear transmission and drive was carried out by CIFT, Cochin as per standard schedule and the performance found satisfactory.

The engine and the drive mounted on a wooden bed in a 38'-0" OAL malabar built-up canoe (Kettuvallam) was put to actual field operations from the Paravoor Beach of the Punnappra coast of Alleppy for a period of one week.

Free runs under light and fully loaded conditions (6 men on board + fishing gear (dry & wet) and the fish catch varying from 200 Kg to 800 Kg) were made.

Launching and beaching under varying sea and surf conditions (morning and evening) were made.

Test and trial runs under full ahead and full astern gear conditions were made along with manoeuvrability tests.

The lifting arrangement of the propeller was tested under varying operational conditions.

The reaction of the actual operators and the local fishermen consequent to the demonstration was recorded.



# GLEANINGS FROM OTHER JOURNALS

## Shrimp: US plea rejected

The Union Commerce Ministry has turned down a suggestion made by the United States Commerce Department to provide an approved list of shrimp exporters who would abide by the conditions prescribed by the US Food and Drug Administration for import of sea food into that country.

Delhi's contention is that all exports of sea food effected from India are subjected to close inspection by the governmental Inspection Agency and hence there was no need for a special approved list.

Hindu

## Home Fish Gardening by Farmers

The money spinning capacity of homestead ponds is quite often ignored in Kerala due to the abundant supply of sea fish. Thanks to fast increase of marine product export and heavy demand for the fish in rural areas 'flooded with Gulf money' many enterprising farmers are continuing methods to take up fish culture in homestead ponds.

"I am confident fish costing about Rs. 4,000 to Rs. 6,000 could be raised from a pond covering an area of fifteen cents" says Mr. Joseph Vettikkadan, a sturdy farmer of Changanacherry in Kerala. Narrating his own novel experience Mr. Vettikkadan revealed rearing of fish in homestead ponds will be a very profitable subsidiary occupation to small

farmers. Within two years he could raise over one hundred and fifty each of *cyprinus carpio*, *mrigal*, and *rohu*, in the pond. Apart from these, one thousand five hundred *Etroplus*, *Suratensis* (Karimeen) also could be grown in the pond without any difficulty.

Of the fish population fingerlings of *cyprinus*, *mrigal*, etc. were bought from fisheries Department farm. The fingerlings grow fast eating kitchen waste, cooked rice, rice bran, etc. The vegetation in ponds too are consumed well by the fish. Mr. Joseph Vettikkadan is of opinion that out of the fresh water fishes grown, *rohu* is outstanding for its delicacy. The greatest advantage is that "we can catch fish when we really need them. This is the

---

## Call to strengthen fisheries co-ops.

Union agriculture minister Brahm Parkash has called for steps to place fisheries cooperatives on a sound footing.

In a letter to state chief ministers, he has emphasised the need to improve through cooperative efforts the economic status of fishermen in the

country.

Fishermen were among the weakest in society and it was recognised that a cooperative approach was necessary to improve their lot. Apart from giving managerial assistance to make them effective, it would also be necessary to settle the

"inland" fishermen on government-owned tanks against a nominal lease, rather than to lease out such tanks to the highest bidders in open auctions.

Times of India

## Breakthrough in prawn breeding

A significant breakthrough in the production of the scarce seed of giant fresh water prawn, 'machro brachium', has been achieved by the prawn breeding centre at Kakinada. The centre, the only one of its kind in the country, is run by the Central Inland Fisheries Research Institute of the Indian Council of Agricultural Research (ICAR).

The Centre has also evolved technology for culturing fresh water prawns under controlled conditions.

A notable feature of the

achievement is that the unit has found the right feed for prawn development.

Juvenile prawns obtained in ponds are grown on supplementary diet like apple, tapioca roots, small shrimp and broken rice. The survival rate is as high as 74 per cent.

As part of the silver Jubilee celebrations of ICAR, the unit proposes to produce 50,000 seeds this year for distribution to farmers.

Times of India

key for getting good prices too." Mr. Vettikkadan said that thousands of ponds in the homesteads of Kerala can be converted into home fish gardens like our famous backyard poultry system. But there must be good arrangements for the supply of fingerlings and some timely extension service.

The growth and size of the fish grown in his pond are quite encouraging. The growth of cyprinus, rohu, etc. are very good and fish weighing over 2 kilograms of two years age are very common. The price of such fish at the most "sought after periods"

enhance their "money spinning capacity". "I got a rohu which had a length over  $3\frac{1}{2}$  feet and it was really an unforgettable experience", Vettikkadan concluded the narration of his success story.

The entire family join in the programme as pretty and paying hobby. The pond which was a neglected area in the campus with all sorts of unwanted weeds has changed into as busy, neat, recreation spot, thanks to the theme of home fish gardening.

HINDU

8-86

## Seafood quality

### Control tightened

Union minister of state for commerce and civil supplies, Dr. Henry Austin said that the government had initiated urgent action for tightening up of the quality control inspection procedures following a new crisis in the marine products export from the country.

He told newsmen at Cochin that the government had urged seafood processors to be cautious accepting raw materials and to reject the same if they had the slightest doubt about their quality.

The new crisis in marine products export was created as a result of the United States market "black listing" the Indian products following suspected decomposition or bacterial contamination. These commodities thus kept in separate list would be allowed to move to the market only after putting them to hundred per cent test.

Economic Times.



## CIFT is at your Service

*It transfers Fishery Technology by way of:*

- Demonstrations of Fishing and Fish Processing techniques evolved by it
- Answering Technical queries
- Supplying project reports and design drawings
- Training courses on fishing and fish processing

*Please contact*

Director,  
C. I. F. T.,  
Matsyapuri P. O.,  
Cochin - 682029.







22.12.80

# Fish Technology newsletter

Vol. II No. 5

NOVEMBER 1979



First ICAR Inter Institutional Tournaments ( south Zone) The highest reward !!  
Shri G. K. Kuriyan, Zonal Chairman, receives the Overall Championship trophy  
won by the CIFT team from Shri K. Balachandran, Mayor of Cochin.



CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY  
MATSYAPURI P. O.

COCHIN - 682029

## CONTENTS

	Page
1. Foreword	3
2. First ICAR Inter Institutional South Zone Tournaments	4
3. Lab - to - Land Programme of CIFT	13
4. Meet Our Scientists	16
5. Gleanings from Other Journals	17
6. Let's Talk it over	18



# Foreword



## EDITORIAL COMMITTEE

Shri R. BALASUBRAMANYAN  
*Chairman*

Shri K. C. PURUSHOTHAMAN  
*Secretary*

Shri P. MADHAVAN  
*Member*

Dr. P. N. KAUL  
*Member*

Fish Technology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Photography Shri K. BHASKARAN

Art Shri G. MOHANAN

Abbreviation : *Fishtech News*

Editorial Committee.

# First ICAR Inter Institutional South Zone Tournaments

Brisk activity, keen competition and immense enthusiasm marked the South Zone Meet of the first ICAR Inter Institutional Tournaments held during 5-11 November, 1979. This was sequel to a proposal made by the Central Joint Staff Council and a consequent decision to organize sports activities in the ICAR and its Institutes as a part of the Golden Jubilee Celebrations of the ICAR, to begin with.

The Central Institute of Fisheries Technology (CIFT), Cochin was privileged to host the South Zone events at the picturesque landstrip of Cochin under the Chairmanship of Shri G.K. Kuriyan, Director, CIFT.

In all, about 420 athletes from eleven ICAR Institutes/Research Centres/Projects took-part in 22 closely contested items. The participants were drawn from:

- (1) Indian Institute of Horticultural Research (IIHR), Bangalore,
- (2) Central Plantation Crops Research Institute (CPCRI) Kasaragod,
- (3) Sugar Cane Breeding Institute (SCBI), Coimbatore.



*Beginning of organised sports activities in ICAR.  
Shri M. R. Nair, Joint Director, CIFT, declares the First  
ICAR Inter Institutional South Zone Meet open.*



*All set for records. CIFT teams leads the march - past*



(4) Central Tuber Crops Research Institute (CTCRI), Trivandrum.

(5) Central Tobacco Research Institute (CTRI), Rajamundry,

(6) Central Marine Fisheries Research Institute (CMFRI), Cochin,

(7) C.I.F.T.

## Hyderabad group

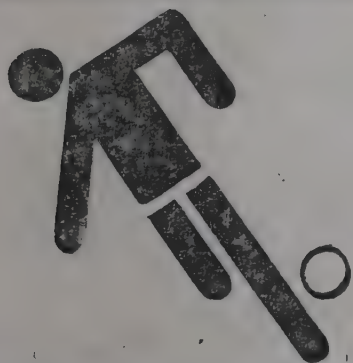
(8) National Academy for Agricultural Research Management,

(9) All India Co-ordinated Research Project on Dryland Agriculture,

(10) All India Co-ordinated Rice Improvement Project and

(11) Directorate of oil seeds Research.

## High Lights of Team Events



### Foot Ball

On the opening day of the foot-ball tournaments CMFRI had an easy win 1-0



*Shri U. Mahabala Rao, the Guest of Honour declares open the athletic meet. Seen with him are Shri G. K. Kuriyan, Zonal Chairman (right) and Dr. K. Ravindran, Zonal, Convener (left).*



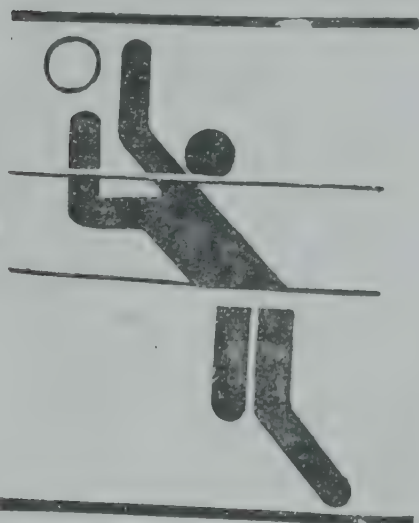
*Clocks the best. Ramakrishnan, CIFT (10) winning first place closely followed by Achutha Rao CMFRI (56) in 100m sprint. Ramakrishnan was adjudged the best individual Champion*

over SBI. In the second match CTCRI was declared won as the Hyderabad group did not field their team.

In the semi-finals, the forward strikers shattered the CTCRI defence with clever moves and good combination and defeated CTCRI by two goals to nil. In the semi-finals between CIFT and CMFRI, the former maintained an edge althrough and dominated most of the second half. CIFT let loose close-to-net-shots at least a dozen times but could not strike the target except twice. The CIFT shunted out CMFRI with a 2-0 Victory and moved into the finals.

## Easy Win for CIFT

CIFT displaying immaculate form whipped CPCRI by two goals to nil. In the 20th minute a free kick from outside the box taken by captain Gopinath was collected by unmarked Vasantha Shenoy who found the target (1 0) In the 30th minute inside left Gopalakrishnan scored the second goal (2-0) to seal the fate of CPCRI.



**Volly Ball**



*Determined haul. Ullasa IIHR hurls shot winning the first place*



*The great leap. Jose Joseph 's winning leap in hop-step & jump*



In the opening day, Hyderabad group beat SBI, CTCRI outplayed CTCRI and CPCRI had an easy win over CIFT. In the quarter final IIHR got the better of CMFRI in three gruelling games.

CTRI had a facile victory over IIHR. In the second match CPCRI defeated the Hyderabad group.

In the gruelling three matches, both sides displayed beautiful combination and excellent defence. For CPCRI, Bahuji and Ahmed Khan gave sterling performance. On the CTCRI side captain Prasad S K. Moidu and M.C.M Reddy made brilliant strides. In the rousing final CTCRI won the zonal Trophy.



*South Zone Foot - ball Champions. The CIFT team with Shri M. Ravindran, Manager, Dr. Ravindran, Convener, South Zone and Shri S. Gopalan Nayar, Chief Manager, CIFT*

## Kabaddi

In the opening day of Kabaddi tournaments held at the CIFT Ground, SBI and IIHR entered the semifinals defeating CTCRI and CTRI respectively. On the following day CMFRI beat CPCRI and Hyderabad group beat CIFT.

In the first match IIHR outplayed CMFRI and in the Second match Hyderabad group edged out SBI. Displaying unblemished strategy and superb co-ordination it was the IIHR team that stole the show and it won the zonal Championship in Kabaddi beating Hyderabad group in the final.



*The calculated shot. Shenoy & Vijayan (CIFT) at the Badminton (Shuttle) finals*



## Badminton (Single)

A. Vasantha Shenoy CIFT, K. J. Antony CPCRI, and K.S.N.D.Mathur CTRI had facile victory over P. Chandra Sekharan, Hyderabad, Dr. Rajendran CTRI, and R. Nagarajan SBI respectively, in the opening day of the Badminton Tournaments held at the Ramavarma Club, Ernakulam on 6th November, 1979. In the days other match Reuben CMFRI gave a sparkling display while overcoming a stoic resistance from Haleem A. Syed IIHR.

Vasanth Shenoy with his full control of the court and sharp shooting easily subdued K.J. Antony. Reuben dominated the two matches by his consistency of attack and judicious strokes easily beat KSND Mathur. Reuben who impressed the spectators with beautiful shots in the semifinal was found stranded. Shenoy won the Zonal trophy by beating Reuben.

## Badminton (Doubles)

In the first round of Badminton Doubles Tournaments,



*At the closing ceremony. Shri K. Balanchandran, Mayor of Cochin, Shri Mohan Naidu, Director, SBI, Shri G. K. Kuriyan, Director CIFT & Chairman, South Zone and Dr. K. Ravindran, Convener, South Zone.*



*Zonal volley Ball Champions. The CTRI team with M. C. M. Raddy & other officials.*



K.J. Antony & Jitendra Mohan CPCRI beat Chandrasekharan and Satyanarayana Hyderabad group; A Vasantha Shenoy & V. Vijayan CIFT beat V.P. Potty and Dr. S.N. Murthy CTCRI.

S. Reuben and A. Raghunathan beat Haleem A. Syed and S.T. Prasad IIHR and K. S. N. D. Mathur & S. K. Maidu CTRI beat R.B. Gaddaginath & V. S. Sankaranarayanan SBI.

### CIFT Outlasts CMFRI

The semifinal between Shenoy-Vijayan and Reuben-Raghunath was full of pulsating moments and sporadic raids by either sides. CIFT made threatening start and after playing three gruelling games moved to the finals. In the second semifinal match CPCRI and CTCRI teams mounted repeated attacks and presented contrasting styles of play. CPCRI won the match and entered the finals.

### CIFT Top Badminton (Doubles)

Shenoy and Vijayan made repeated attacks on Antony and Jitendra CPCRI in the final. CPCRI side served well and presented a co-ordinated display. CIFT's supremacy was never in doubt. Consistent close-to-net smashes of CIFT pair had weakened the confidence of CPCRI. It was the cool and composed CIFT team that stole many hearts when they won the

team Championship in Badminton Doubles.

### Table Tennis (Singles)

Eight teams took part with great zeal in the Table Tennis (single) Tournaments held at the YMCA, Ernakulam. In the opening day Haleem A. Syed IIHR beat S.K. Naidu CTCRI; Karuppusamy CMFRI beat Dr. P.G. Rajendran CTRI; Madan Gopal Haderabad Group beat R. Nagarajan SBI and Yetendra Joshi beat Sreenivasa Gopal CIFT.

Yetindra Joshi edged out Karuppusamy in three matches. Madan Gopal staved off a stiff challenge from Haleem A. Syed and entered the final.

In the final Madan Gopal turned in a splendid performance with his beautiful shots and sharp placings.

Haleem A. Syed and Srinivas won through to the finals defeating Ragunath and Kurupusamy in two straight matchhs.

### Haleem and Srinivas bag TT Trophy, CPCRI Runner-up

Though Joshi and prakasan put up stiff challenge they were subdued by the IIHR pair by their close-to-net large angle smashes and calculated placings. playing tactfully, Haleem and Srinivasan outplayed CPCRI and won the Zonal TT Doubles Cham-

pion Ship. Yetindra Joshi mounted attacks by shooting from far and near. In a thrilling game Madan Gopal trounced Yethindra Joshi and won the Championship.

### Table Tennis (Doubles)

In the first round, A. Regunath & Karuppusamy CMFRI beat Srinivasa Gopal & Jose Stephen CIFT; Yetindra Joshi & N. Prakasan CPCRI beat S.N. Moorthy Dr. p.G. Rajendran CTRCRI; S. K. Naidu and K. S. N. D. Mathur CTRI beat N. S. Sekharan and R. Nagarajan SBI and Hallem A. Syed & K. Sreenivasan IIHR beat Madam Gopal and K. Venkateswaralu Hyderabad Group.

In a set of thrilling matches Yetindra Joshi and Prakasan humbled Naidu and Mathur and qualified to enter the finals.



### Athletics

Amidst a colourful display of grandeur, Shri U. Mahabala Rao, IAS, Chairman, Cochin Port Trust, Cochin declared the fist ICAR - Institutional

South Zone Athletic Meet open at 14 30 hrs. on 9th Nov. 1980 at the Durbar Hall Grounds, Ernakulam. In a colourful and serene march past Shri Ramakrishnan athletic captain of CIFT took the oath on behalf of all the competitors.

Displaying ability, briskness and proven stamina Ramakrishnan CIFT stole the show winning all the running events such as 100, 200, 400, 800, and 1500M. The CIFT quartet of Bhaskaran, Gopinathan, Ramakrishnan and Veeranjanyalu clocked 53.5 sec emerged the fastest 4X100m relay team pushing CPCRI to the Second place. In the track events IIHR registered a sweeping victory by winning the first place in long jump, discus throw, pole vault and 2500 m cycle race.

In the long Jump Bylanjanappa IIHR and Jose Kalathil CIFT were neck to neck and the former improved his performance by 0.35 m and came out first.

Ullasa IIHR cleared a distance of 25.01 defeating Alfred CMFRI in the discuss throw.

Chandrappa and Ullasa both IIHR improved their

points position by winning the first and second place shotput. Again Ullasa IIHR 'Hammered Long' to win the first place in hammer throw, his nearest competitor Gopalakrishnan CMFRI trailed by 2-95m.

Sankar IIHR rose to great height in polevault when he beat Jnanakan CPCRI.

In the 25000 m cycle race Basappa IIHR peddled fast and clocked 6 mi 4.2. sec. pushing Mario Fernandez CPCRI to the Second place.

Padmasekharan CMFRI cleared a height of 1.57m in

the high jump to win the first place whereas Jose Kalathil CIFT trailed by 6cm.

CPCRI secured a first place when Radhakrishnan Nair's Javelin swept through a distance of 33.26 m. Baskaran CIFT finished second. The Jumps of Jose Jose of CIFT in the hop-step and Jump event backed the jump of CIFT's points to the zenith.

At the close of the two days athletic meet CIFT headed the list securing 53 points followed by IIHR with 36 points and CPCRI with 27 points.

## POINTS SECURED BY THE SOUTH ZONE INSTITUTES

Name of Institute	Points		
	Games	Athletics	Total
CIFT, Cochin	30	53	83
IIHR, Bangalore	20	36	56
CPCRI, Kasaragod	25	27	52
CMFRI, Cochin	5	25	30
Hyderabad group	15	2	17
CTRI, Rajahmundry	10	0	10
CTCRI, Trivandrum	0	1	1
SBI, Coimbatore	0	0	0



## WINNERS AT A GLANCE

Event	Winner	Runner-up
Foot Ball	CIFT	CPCRI
Volley Ball	CTRI	CPCRI
Kabaddi	IIHRI	Hyderabad Group
Badminton (S)	CIFT	CMFRI
Badminton (D)	CIFT	CPCRI
Table Tennis (S)	HYDERABAD Gr.	CPCRI
Table Tennis (D)	IIHR	CPCRI
4 x 100m Relay Race	CIFT	CMFRI

In a colourful ceremony at the end of the athletic meet, following a brief speech by the zonal Chairman, the Guest of honour Shri Mahabala Rao declared the meet closed.

### Closing Function

The victory ceremony was conducted along with the closing ceremony of the Zonal Meet at the CIFT Residential complex at 17.30 hrs on 11th November, 1979. Worshipful Mayor of Cochin, Shri K. Balachandran, was the Chief Guest at the function presided over by Shri Mohan Naidu, Director, SBI, Coimbatore. Shri G. K. Kuriyan, the Zonal Chairman in his

welcome address congratulated the Council in taking a decision to conduct sports in an organised manner that would help foster true sportsman spirit and brotherhood and thanked the Council in giving an opportunity to host the South Zone Tournaments by CIFT. He Congratulated the participants and winners and exhorted to be 'Higher, Faster and Stronger'. Worshipful Mayor welcomed the athletes who have come from neighbouring States, Karnataka, Tamil Nadu, Andhra Pradesh and host State to Cochin while distributing the Trophies and Certificates. CIFT bagged the overall championship

winning 83 points IIHR and CPCRI were second and third with 56 and 52 points respectively. Shri K. Ramakrishnan, CIFT won the athletic championship. Shri Mohan Naidu, in his presidential address congratulated the participants and the organisers who have made excellent arrangements to make the Zonal meet a memorable event. After witnessing the thrilling performances, he offered his services to host the next Zonal meet at SBI, Coimbatore. Dr. K. Ravindran, convener thanked the illustrious participants of the Meet, the officials who served on the Committees and the authorities in Cochin who provided assistance by providing fields/courts etc.

The Zonal meet was indeed a memorable event that brought to surface the sports talents of the ICAR employees. It witnessed some of the best performances. It was a superb testimony that soon ICAR would earn the pride of place in the Sports Map of India.



# 1st ICAR INTER INSTITUTIONAL TOURNAMENTS (SOUTH ZONE)

5 - 11 November 1979

Management Committee

## CHAIRMAN

Shri G. K. Kuriyan : Central Institute of Fisheries  
Technology, Cochin

## CONVENER

Dr. K. Ravindran : Central Institute of Fisheries  
Technology, Cochin.

## MEMBERS

Dr. E. G. Silas : Central Marine Fisheries Resea-  
rch Institute, Cochin

Dr. S. V. Bapat : do

Shri A. Raghunathan : do

Shri B. K. Punj : Indian Institute of Horticultural  
Research, Bangalore

Shri H. H. Khan : Central Plantation Crops Rese-  
arch Institute, Kasaragod

Shri T. S. Ponnaiah : do

Shri N. Mohan : Sugarcane Breeding  
Institute, Coimbatore

Shri P. P. Pillai : do

Shri M. C. M. Reddy : Central Tobacco Research  
Institute Rajamundry

Dr. K. Venkateswarlu : National Academy for Agricul-  
tural Research Management,  
Hyderabad.

Shri V. Govardhan : All India Co-ordinated Research  
Project for Dryland Agriculture  
Hyderabad.

Shri K. Sathyanarayana : do

Shri M. R. Hegde : Directorate of Oil Seeds  
Research, Hyderabad

Dr. P. G. Rajendran : Central Tuber Crops Research  
Institute, Trivandrum.

Shri M. R. Nair : Central Institute of Fisheries  
Technology, Cochin

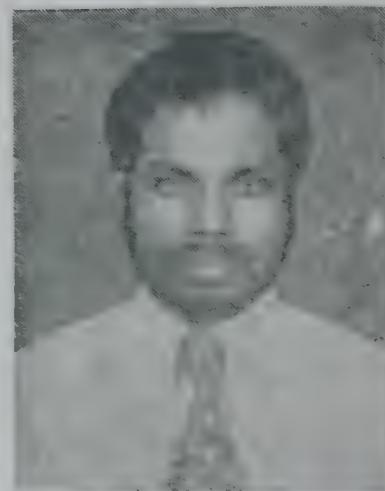
Shri A. Vasantha Shenoy : do

" P. James Abraham : do

" K. Ramakrishnan : do

" A. K. Venugopal : do

## Training under Colombo Plan



Shri M. K. Mukundan, Scientist S-1, has joined CIFT after a six month advanced course in Enzyme Technology held at Osaka, Japan. The course was organised by Japan International Co-operation Agency under Colombo Plan at Osaka Municipal Technical Research Institute.

Shri Mukundan was able to study the latest techniques in large scale preparation, purification and characterisation of enzymes from microbial source under the guidance of renowned scientists like Dr. Y. Suji Saka, Dr. M. Iwai, and Dr. Suji Hava.



# LAB - TO - LAND

## PROGRAMME OF CIFT - 7

*(One of the highlights of the Golden Jubilee Celebrations of the Indian Council of Agricultural Research being observed this year is a country wide programme of transfer of technology known as the Lab - to - Land Programmn to which CIFT is also contributing in a humble way. In the previous issues we had published reports on such programmes held at Mangalore, Bombay, Kumarakom, Calicut, Kumbalam, Vaikom and Madras. In this issue we publish a report on the Lab - to - Land Programme held at Veraval, Gujarat State)*

Sharks are more or less a regular item in the fish catches from the off-shore waters all along the coasts of India, although the period of abundance varies from region to region. On an average about 35,000 tonnes of shark fish are landed in the country every year. At present the shark fishery is considered important mainly as regards extraction of the liver oil and for the preparation for shark fins for export. Though salt curing of the shark flesh is also in practice, the utilization in this way is only to a very limited extend. Only a nominal quantity is utilized for consumption in fresh form.

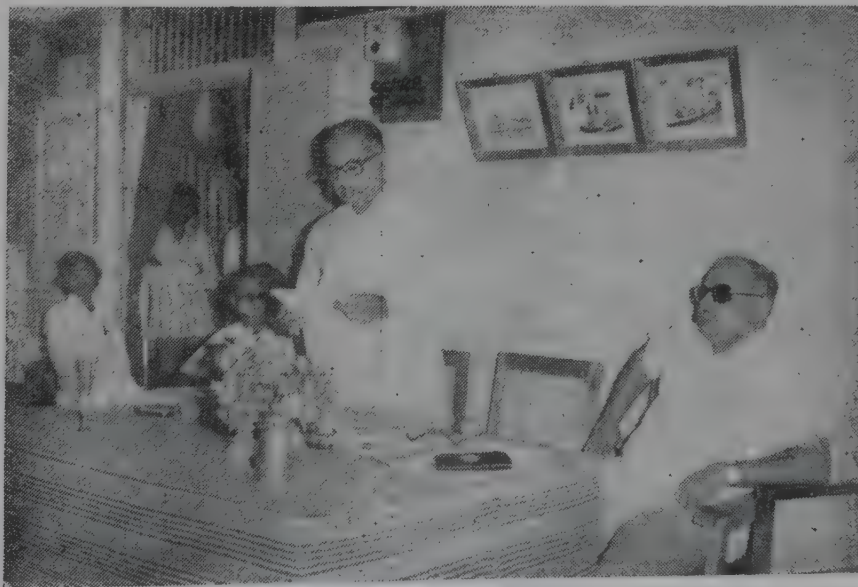
The shark fishery can be more profitable, if the other parts such as flesh and skin can also be utilized economically. The Central Institute of Fisheries Technology has worked out several methods for the economic utilization of shark fish. These include preparation of shark skin leather, shark fin rays, fillets etc. The Institute has developed a successful method for the removal of the

comparatively high urea content of the shark flesh which will help the flesh to be processed into good quality fillets acceptable in the market. Some of these processing methods with its processing and handling methods were demonstrated at Veraval in Gujarat State as part of the Institute's Lab-to-Land Programme.

Thirty families from Village Chorwad have been selected for this programme which was inaugurated on the 22nd

November, 1979.

The programme was organised in collaboration with the Gujarat Department of Fisheries. Thirty fishermen participated in the training. Apart from various methods of shark fish processing, modern methods of fish transportation, trawling and handling of new gears were also demonstrated. Improved trawl gears and gill nets developed by the Institute were also arranged to be supplied to the selected families through state Fisheries Office for operation from the



*Presidential address by Shri R. B. Menon, Deputy Director of Fisheries World Bank Project, Veraval*

boats of local fishermen to improve their catch.

Inaugurating the programme, Prof. N. D. Chhaya Joint Director, Gujarat Fisheries Aquatic Sciences Research Institute, said that the Lab-to-Land Programme of CIFT would serve as link activity between the scientists and the fishermen which was lacking all these days. He requested the fishermen to utilize the opportunity for their betterment and to extend their full cooperation to the scientists.

Shri R. B. Menon, Deputy Director of Fisheries World Bank Project, Veraval, presided over the function.

Shri Ramanandan, Superintendent of Fisheries, Veraval welcomed the gathering and Shri K. K. Solanki, Scientist-in Charge of Veraval Research Centre of CIFT expressed the vote of thanks.

★

## APPOINTMENT

Shri C. G. Tank, S. S. Grade III, Veraval Research Centre was appointed as Senior Field Assistant (Technician-2)

©



Prof. N. D. Chhaya inaugurates the programme

## FAO/NORAD Trainees Visit CIFT



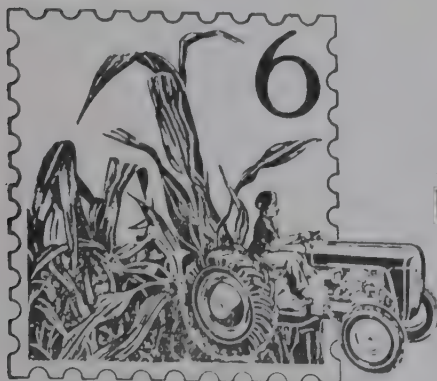
Twenty three FAO / NORAD trainees from ten countries accompanied by Course Director, Mr. S. Olson and Fishing Gear Expert Mr. Krolson visited CIFT on November, 17, 1979. The trainees were from Nigeria, Mauritius, Kenya, Mozambique, Ethiopia, Tanzania, Sri Lanka, Iran, Maldives and Laccadives. CIFT Director Shri G. K. Kuriyan, addressed the trainees and explained the working of the Institute.

(Photograph shows the Trainees and Scientists of CIFT)

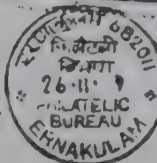


# ICAR Golden Jubilee Stamps Released

प्रथम दिवस आवरण FIRST DAY COVER



प्रथम निर्गम दिवस  
FIRST DAY OF ISSUE



छठी नियत टिकट माला  
SIXTH DEFINITIVE SERIES

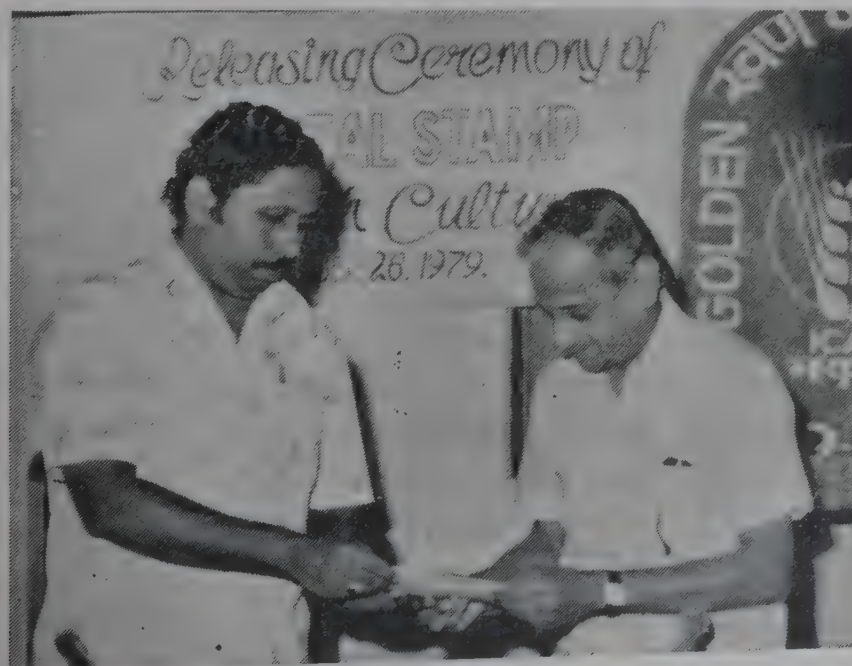
The stamps brought out by the P & T Department on the occasion of the golden Jubilee celebrations of the ICAR were released in a function held at CIFT, Cochin, on November 26, 1979.

Acting District Manager (Telephones), Shri K. Sreedharan presented a set of the

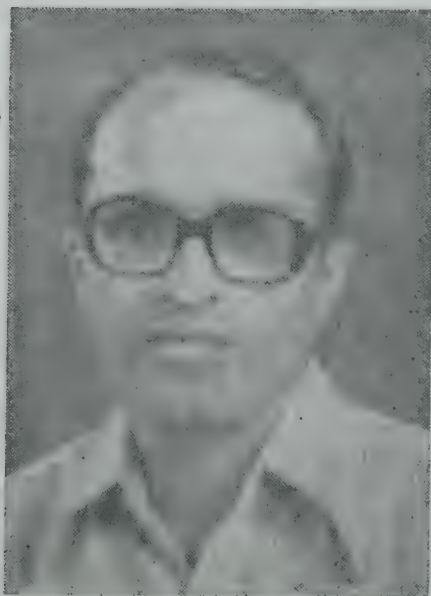
stamps and the first day cover to the Collector of Customs and Central Excise, Shri T. Swaminathan.

The 5 and 25 paise stamps depict the theme of fish and fish poultry respectively.

Shri G. K. Kuriyan, Director, CIFT, welcomed the gathering.



## K. Devadasan



Shri Koodanchery Devadasan is Scientist-S2 working in the Biochemistry and Nutrition Division of CIFT, Cochin. Born on August 7, 1946 at Ottappalam in Palaghat District, Shri Devadasan had his early education in his native village.

He passed the SSLC Examination in first class and joined the Maharaja's College, Ernakulam in 1960. He took his B.Sc (chemistry) degree in 1964 and MSc (Applied Chemistry) in 1966, both in first class.

Shri Devadasan joined CIFT as Research Assistant in August,

1966. After five years, he became Senior Research Assistant and again after two years he was promoted to Junior Fisheries Scientist. Later, his position was elevated to Fishery Scientist and Scientist-S2.

He has also worked in the research centres of CIFT at Calicut and Veraval as the Scientist-in-charge.

Shri Devadasan has made substantial contributions in detailed and systematic studies on the nature and composition of muscle protein. As a part of this work, the changes in the major protein nitrogen fractions of different species of fishes and shell fishes of commercial importance during storage in ice were studied.

After transfer to Calicut as Scientist-in-charge he was associated with studies on developing and popularising improved methods of dry curing, pickle curing and smoke curing. Some effective preservatives were also found out and their use was popularised among

local fishermen.

On his promotion and transfer to Veraval Research Centre he was involved in the study of processing characteristics of the marine and fresh water fishes available in Saurashtra region. Better methods of utilising elasmobranchs and other cheaper fishes like ribbon fish, dhoma, etc. available in large quantities in that region were worked out. Edible fish powder and smoked fish products from Dhoma and eel were popularised.

Shri Devadasan has to his credit eighteen Scientific and popular publications on the above subjects. He is a member of (1) Society for Fishery Technologists (India) (2) Indian Science News Association (Calcutta) and (3) Association of Food Science & Technology (Mysore).



# GLEANINGS FROM OTHER JOURNALS

## 43% Subsidy for Trawlers

The Union Government has decided to grant 43 per cent subsidy for indigenous production of fishing trawlers. This will enable Indian trawlers to meet the stiff competition being posed by imported trawlers which are available at much lower prices.

An empowered committee will also be set up to operate, the subsidy scheme under the aegis of the department of heavy industry.

For the purpose of subsidy

it is reliably learnt, the indigenous trawlers will notionally be treated as exports to enable them to receive the benefits of duty drawback and other concessions normally provided for export products. Thus 33 per cent of the total subsidy would be in the form of duty drawback on excise paid on indigenous components and raw materials, as well as non-application of sales tax and excise duty.

The remaining 10 per cent

of the subsidy would be in the form of price preference to be given to the Indian shipyards over foreign trawlers builders.

Regarding production capability within the country, it had noted that there was a firm gross capacity of about 170 trawlers annually of different size in the country. This was against a projected demand of only 100 trawlers per annum.

Economic Times

---

## Seafood export record impressive advance

Seafood exports from India during the year made an impressive advance to 86,894 tonnes valued at Rs. 2,346 million, as against 65,967 tonnes worth Rs. 1,800 million in the previous year.

Export of fish, fresh and frozen, showed more than five-fold improvement while frozen cuttle fish and squid, the

recent additions to the export list, made significant improvements. Export of frozen frog-legs, which had received a severe setback in the US market had also shown a 40 per cent increase.

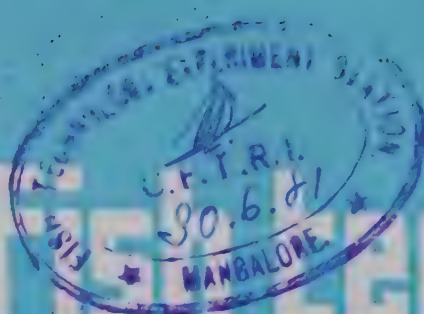
Giving this information at the ninth annual general meeting of the Seafood Exporters Association of India in cochin

the president of the association Shri C. Cherian told the exporters: "The overall results of the year clearly shows that the industry need not entertain any apprehension in the wake of certain steps taken by the Food and Drugs Administration in the US as far as export of marine products to that country is concerned.

Economic Times







# Fish Technology newsletter

Vol. II No. 6

DECEMBER 1979



CIFT Scientists demonstrating the application of preservatives on "Thanguvallam" at Chellanam



CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY  
MATSYAPURI P. O.  
COCHIN - 682029

## CONTENTS

	Page
1. Foreword	3
2. Lab - to - Land Programme of CIFT	4
3. Recommendations adopted by the seminar	8
4. Let's Talk it over	10
5. International year of the Child	12
6. Meet Our Scientists	14
7. Gleanings from Other Journals	16
8. Catalogue of Implements	17



# Foreword

## EDITORIAL COMMITTEE

Shri R. BALASUBRAMANYAN  
*Chairman*

Shri K. C. PURUSHOTHAMAN  
*Secretary*

Shri P. MADHAVAN  
*Member*

Dr. P. N. KAUL  
*Member*

Photography Shri K. BHASKARAN

Art Shri G. MOHANAN

Abbreviation : *Fishtech News*

Fish Technology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Editorial Committee.

# LAB - TO - LAND PROGRAMME OF CIFT - 8

## Preservative treatment of Thanguvallams for their enhanced life

*One of the highlights of the Golden Jubilee celebrations of the Indian Council of Agricultural Research being observed this year is a country - wide programme of transfer of Technology known as the Lab - - to - Land programme to which CIFT is also contributing in a humble way. In the previous issues we published reports on such programme held at Mangalore, Bombay, Kumarakom, Calicut, Kumbalam, Vaikom, Veraval and Madras. In this issue we present a report on programmes taken up at Cochin.*



*The "Thanguvallams" on the beach after fishing*

Fishermen living all along our extensive coastline with their traditional fishing craft, gear and methods of fishing contribute nearly 70% of the total fish landings. Surprisingly still, the full benefits of this

achievement have not accrued to that community. Most of them still live at far below subsistence level with low level of real income, substandard housing, mal-nutrition and poor health and eternal indebtedness.

Many of them are without any fishing craft or tackle of their own and are thus analogous to the landless Indian farmer.

However, a general survey will only show that our fishermen suffer due to low productivity, inefficient technology and weak institutional support. Industrial revolution ranging all over the country somehow did not reach them. These able seafarers, with their full mastery over the seas around them, may perhaps be made more useful to the nation and to themselves, given all opportunities and the required support.

Small-scale fisheries along and around our Indian coasts will now be given the due importance and recognition as a potential industry and a source of food production.





*Thanguvallam under actual operation*

## APPROACH

The existing technology will be suitably blended with the appropriate modern technology for the benefit of the fishermen community as a whole.

Both harvest and post-harvest technology will go hand-in-hand and the actual producer will get the maximum of the returns.

His buying capacity will increase. His standard of living will change for better. His dependents will be kept above want and he will get their integrated professional assistance at all times. His socio-economic conditions will gradually change over to days of happiness and purposeful living. His dreary surroundings will yield place to modern urban living conditions.

Thus, he becomes fit enough to understand, appreciate and adopt to modern technology as a result of slow and steady process of transition, indeed, revolution and a renaissance.



*Fishermen applying the preservative to their craft assisted by scientists*

## TECHNICAL PROGRAMME

1. Improvements to the traditional fishing craft, gear and method of operation for better returns.
2. To reduce the cost of inputs through the introduction of cheaper materials for craft construction and gear fabrication.
3. To enhance the normal working life of the traditional craft and gear through preservative treatments and proper maintenance procedure.
4. To introduce modified fishing nets, lines and traps and demonstrate their efficient operations from traditional fishing crafts as well as from improved crafts.



*CIFT Scientists with the Fishermen of Chellanam Village*

5. To generate adequate skilled man-power from the fishermen community ultimately to operate the mechanised fishing of the future.

6. To locate source of financial help and the required infrastructural facilities in Chellanam panchayat in Ernakulam District is one of the areas selected for the transfer of technology developed at CIFT under the Lab-to-Land programme. Chalakkadavu is a typical fishing village in this panchayat, where the majority of the people depend on fishing for their livelihood. The fishermen of this area operate the gear "thanguvala" from plank built canoes called "thanguvallam". From Chalakkadavu landing centre, 15 Thanguvallams are operating employing about 300 fishermen living in this area.

The 'thanguvallam' is a

traditional craft built out of Anjili wood measuring about 48' OAL and operated by 15-20 fishermen. This beach craft costs about Rs. 10,000/-. The local fishermen resort to periodical preservative treatment of their craft with sardine oil or cashewnut shell liquid mixed with resins to prevent deterioration of craft.

From Chalakkadavu landing centre, 10 thanguvallams have been selected for demonstrating the efficacy of chemical preservative treatment developed at CIFT. A team of Scientists of the craft & Gear materials Division of CIFT, visited Chalakkadavu on several occasions during 1979 to demonstrate and convince the fishermen about the efficacies of chemical preservative treatment developed at CIFT over the conventional method.

Accompanied by Fr. Marcel, the local priest, the scientists demonstrated the method of chemical preservative treatment

of thanguvallams. The Scientists also explained to 75 fishermen about the reduction in the life of the craft due to the biological and physical agencies and the necessity of chemical preservative treatment.

A 10% arsenic - copper-chrome composition was prepared and applied on the outer portions of the boats. Two brush coats of this preservative of the drying was followed by a liberal coat of creosote preservative. To gain confidence and acquaint with the preservative treatment, the fishermen were encouraged to mix the preservative and apply on the crafts. They were also told about the advantages of preservative treatment in terms of monetary benefit as the new chemical preservative treatment costs about Rs.340/-per annum compared to their traditional method at a cost of Rs.500/-

Of the 10 Thanguvallams selected, five were treated with Arsenic Copper Chrome Composition followed by creosote and the other five were treated with creosote alone.

During the subsequent visits the Scientists noticed greater response from fishermen, who had apparently overcome their initial inhibitions to chemical preservative treatment on these Thanguvallams are still being monitored by the Scientists at regular intervals for future guidance.





## Survey and study of mechanised fishing boats for evaluating their operational efficiency

CIFT has launched an operational consultancy Service for the mechanised fishing craft operating from the Cochin Fishing Harbour numbering about 2,000. The survey covered:

1. Materials of construction, degradation of failure of materials by marine corrosion, fungal attack and mechanical factors, protective coatings, and cathodic protection measures.
2. Maintenance costs on docking, corrosion control, fouling control, painting, replacement of corroded/mechanically eroded metallic components, damaged wooden structures, anodes and on labour.
3. Loss of fishing days and reasons thereof.

The Survey brought out the following specifically.

1. The level of awareness of modified technologies now available.
  2. The impact of transfer of technology from research Institutes.
  3. Faulty practices, neglect and wrong substitution for short-term gains.
  4. Scope for reduction of maintenance Costs and increase of efficiency.
- Based on the survey information, the vessel owners/operators were provided technical consultancy services on materials specifications like quality and grade of Cu and Al sheets, structural steels, sacrificial anodes, propeller alloy propeller shafts, wire ropes,

hull appendages, deck machinery etc., technologies for protection of metals from marine corrosion, and of wood from biological agencies of degradation. Boat owners were also advised of the use of different types of surface coatings, wood preservatives, day-to-day care and of the proven technologies by which cost reduction in maintenance of fishing boats could be achieved.

progress cover the survey which in progress covered about 1,500 boats of different materials of construction and belonging to different size groups.



# Recommendations adopted by the Seminar on 'Protection of Marine Environment and Related Ecosystems' held at Goa, November 13 - 15, 1979

1. Prior environmental appraisal of shipping and harbour projects and shore-based industries is essential. Requisite measures for enforcement of this requirement through statutory obligations need to be pursued urgently.
2. Development of technical and technological capability together with requisite R & D efforts for combating oil and other forms of marine pollution in harbours, estuaries and off shore areas, needs to be accorded very high priority. Programmes and institutions working in this field should be adequately supported.
3. Government is requested to consider on merit, early ratification of the various international conventions on prevention of marine pollution.
4. As reception facilities for oily mixtures and other wastes, etc., are reported to be far from adequate, such facilities should be provided urgently.
5. Municipal Corporations of coastal cities should put up sewage treatment plants and on no account should be permitted to discharge raw sewage in to the sea. (Similarly, all ocean-going vessels operating under Indian flag, should also be adequately provided with minisewage treatment plants).
6. Studies in the fields of recycling of wastes related to coastal environment, fish culture, algal growth, agricultural practices, etc., should be intensified.
7. There is an urgent need for standardization and intercalibration of the analytical and design techniques pertaining to pollution control.
8. For effective discharge of their responsibility in the field of marine pollution, Coast Guard Organisation should be adequately strengthened, inter-alia by way of capability for application of remote sensing techniques and safety of offshore operations.
9. Proper design of ocean outfalls calls for urgent attention. Necessary facilities for collection of field data and related exchange of information in this regard, need to be built up.
10. In the context of protection of marine environment, Bombay, Hooghly, Visakhapatnam, Cochin and Madras, require urgent attention. Integrated plans to improve the eco-systems should be formulated. Other areas need also to be identified and appropriate action should be taken.
11. Special areas for total prohibition of the discharge of oil and other wastes should be identified and declared.
12. The statutory bodies like Central and State Water Pollution Control boards are presently handicapped to a considerable extent for want of adequate



- laboratory and technical support for monitoring the state of environment. Further, such statutory bodies need to have requisite environmental advisory expertise in the discharge of their functions.
13. Educational aspects of ecology, environmental status and problems of pollution need attention. Curriculum development at the school, college and post-graduate levels have to be suitably undertaken. Special efforts should be made to provide proper training to personnel engaged in marine pollution control.
  14. In the field of marine environmental protection, citizens' involvement has an important role. Educational efforts through mass media, for promotion of social consciousness, should be promoted
  15. Environment-oriented research and development work should be encouraged on an inter-disciplinary basis, through joint inter-institutional programmes, ensuring adequate coordination between industries and scientific institutions.
  16. More investigations should be undertaken to determine the immediate and long-term effects of oil, pesticides and heavy metals, on the different marine organisms by suitable bio-assay techniques and construction of stress profiles for different species.
  17. Many of the penal provision under Merchant Shipping Act and Indian Ports Act, are not serving as an effective deterrent against possible discharge of oil and other pollutants. These need to be amended suitably keeping in view the corresponding provisions prevailing in other countries.
  18. The various authorities under the Merchant Shipping Act and Coast Guards Act entrusted with protection of the marine environment are presently not clothed with adequate enforcement and magisterial powers. This needs to be looked into urgently by appropriate amendments to relevant Acts and Rules.
  19. Legislation in marine environment calls for a continuous review to keep pace with the international developments. It would be essential to have a fully equipped legislative wing in the Directorate General of Shipping, so that timely corrective measures are initiated.
  20. Presently in our country, coastal zone management is left to individual states. It is necessary to have a uniform coastal zone management policy and to build up appropriate machinery for effective enforcement of the same.
  21. There is an urgent need to take up integrated coastal zone mapping covering coastal and other resources, to an appropriate scale.
  22. Inter-institutional coordinated efforts are necessary in mapping of the corrosion behaviour of metals and alloy based systems in the polluted coastal waters of India.
  23. Protected areas and marine parks have to be developed and established with a view to preserve natural resources such as coral reefs, mangrooves, sandy beaches etc. in their pristine condition.
  24. Both short-term and long term data relevant to oceanographic and meteorological parameters have to be collected for solving coastal erosion problems; this has a bearing on coastal zone management.

**Sri. Paramjit Singh,  
Mathura, U. P.**

I came to know that CIFT has developed some cashew nut shell liquid (CNSL) paint for the protection of fishing boats. I would like to know more about it.

CIFT: This Institute has done some work on the utility of CNSL in the protection of fishing boats, as for example in the formulation of anticorrosive and fauling paints, as a surface material etc the

- 
25. At national level, a comprehensive environmental management policy which should also cover marine ecology needs to be enunciated.
  26. For ensuring the installation of requisite pollution control facilities Government should seriously consider offering industries and local bodies adequate incentives.
  27. By virtue of their growing importance, environmental and ecological matters call for very close attention to national level, preferably under the direct charge of a separate Ministry or Department of the Government of India.



details of which are given below.

Cashewnut shell liquid obtained from the pericarp of cashewnut is a by-product of the cashew industry. It is a valuable indigenous raw material finding use in various industrial applications within the country and abroad.

CNSL in the crude form is traditionally used by the fishermen of the coasts of Madras, Kerala and Mysore as a surface coating material on the hulls of indigenous fishing crafts and sailing boats as a measure of protection against timber decay. Old as well as new crafts are periodically smeared with this oil either alone or in combination with other materials like tallow, lime-powder, 'kavi' etc.

The efficacy of CNSL as a protective coating on wooden surfaces of fishing boats has been under investigation at this Institute for sometime past. It is observed that the wooden surfaces receiving a profuse coat of the liquid are normally immune to the attack of marine bacteria, marine fungi and termites on land. Such coating also minimise the weathering action on timber structures. The surface coating however, has not been found to protect timbers in sea water from the attack of marine wood borers and foulers as it does not possess

any toxic properties. The CNSL treated wooden surfaces under prolonged immersion are severely infected by marine wood borers like *Teredo*, *Bankia*, *Nausitora*, and *Sphaeroma* as bad as the untreated surface. The treated surfaces are also heavily fouled by barnacles, oysters, hydroids and tube worms. Though a vesicant fluid CNSL is not adequately toxic to these marine organisms. However, the resistance to attack by marine borers can be enhanced by incorporating suitable toxic substances like 'Dieldrin' and copper salts. Treatment with such preparation has been found to keep the ship worms (*Teredo*, *Bankia* & *Nausitora*) completely away though a few *Martesia* and fouling organisms were still present under prolonged immersion.

The general characteristic of CNSL can be considerably modified by special treatment. Investigations carried out at this Institute have shown that for coating on timber structures as a protection against weathering and fungal infection CNSL in the form of a resin has better effects than plain CNSL. As a surface coating material for the above purpose the CNSL resin is as good as the imported oleo resin 'Damm-ar batu' or the indigenous resins like black dammar, white dammar, sal dammar etc recom-



mended by this Institute instead of the imported resin (Ref: Fish Technology Newsletter Vol. V. No.4, January 1965.). The CNSL resin can be successfully used as an efficient water and moisture proof coating and as a caulking compound for all joinery works in wooden fishing boats.

CNSL resin can be cooked with linseed oil and with suitable driers it will result in a good varnish. With an improvised brush it can be smeared all over the surface, both inside and outside, including the backbone assembly and hull planking, in caulking of seams, for plugging, fastening holes etc, i. e. wherever the preparation from 'Dammar batu' or indigenous wood resins is normally applied. Iron fastenings can also be coated with the CNSL resin and counter sunk. The resultant holes can be filled with the CNSL resin putty. A single profuse coat would be sufficient for the hull above water line. On the hull below water line two thick coats may be applied so as to obtain the maximum effect.

A modified CNSL resin available in the market under the trade name of 'SILIX' which is a condensation product of decarboxylated CNSL with phenol formaldehyde at controlled conditions could be successfully incorporated in the formulation of an antifouling paint for marine use at

this institute. Details of this antifouling composition have already been published in Fish Technology Newsletter Vol. VIII No.1 April 1967. Preliminary attempts of painting metallic surfaces with CNSL paints have also shown encouraging result in as much as they show property as good as any conven-

tional antifouling paint.

Investigations were also under-taken at this Institute towards the formulation of an anticorrosive paint using the commercially available 'SILIX' resin. The details of a successful composition worked out are given below:

## Ingredients

'Silix'  
Phenolic resin  
Linseed - resin  
Lead sulphate  
Iron oxide  
Aluminium powder  
Talc

## Weight

(Percentage in dry film)

25.3  
3.2  
3.2  
21.0  
21.0  
15.8  
10.5

White spirit, turpentine and naphtha were added to adjust viscosity and naphthanates as driers in addition to small

amounts of ethyl methyl ketoxime and diethyl phthalate. The characteristics of the paint are as below:

### 1. Drying time

- i. Time for surface drying - 6-10 hrs.
- ii. Time for hard drying - 36-48 hrs

### 2. Scratch hardness

- Satisfactory

### 3. Flexibility and adhesion

- Satisfactory

### 4. Resistance to sea water

- Satisfactory

(Synthetic)

### 5. Resistance to alkali

- Satisfactory

(2% sodium carbonate)

### 6. Resistance to lubricating oil

- Satisfactory

### 7. Salt spray test (5% sodium Chloride, 120 hrs

- Heavy corrosion at the scape line, but not under - neath the paint film. No blistering.

### 8. Aerated sea water (7 days)

- No corrosion, no blistering

# International Year of the Child

## Celebration at C. I. F. T.

The Year 1979 was observed as the International Year of the Child at our Institute. The major thrust of the programmes was directed towards the health, educational and recreational aspects of the children of all the staff but with a special emphasis on the families of low-paid staff.

In early July, by the time the schools were just re-opened after the summer vacation, cloth for school uniform, note books and stationery were supplied free to the children of the supporting staff.



*Painting Competition*

The formulation passed the usual tests prescribed for anti-corrosive compositions. The coating did not show any blistering or softening on cathodically protected structures. Paints based on oil or oleo resinous media become easily saponified under such conditions. The present composition withstood the alkalinity normally encountered on cathodically protected steel hulls. Further experiments on this antifouling composition are underway.

It is known that many paint manufacturers have brought out ready-mixed paints in

various conventional shades incorporating CNSL.

The possibilities of using CNSL resin as an adhesive compound for fixing thermocole insulant in fishholds of trawlers have also been explored at this Institute. Preliminary trials were also undertaken to study the combination effect of fibre glass mat and CNSL resin.

**Dr. Samila Al Azhana**  
**John, Water Purification Project, Icharloun, Sudan.**

I would like to know if

there is any water treatment plant or factory in India using chitosan for water coagulation and to what extent chitosan is used for the clarification of wine.

**CIFT :** In India, no water purification plant employs chitosan. Instead, alum and lime are generally used. Similarly in the purification of wine also, chitosan is not used in India, whereas it is understood, it is used for that purpose in the U. K.



In July and August, Health Inspection programmes for the children of the staff were carried out. Dr. Joy P. Chungath, the Paediatrician and Dr. (Mrs.) Kairali Mohan Raj, Dentist did excellent job in this respect. A total of 45 children under the age of 12 of all categories of staff were benefitted by this scheme.

In December, competitions in sports and fine arts for children were conducted, 45 children took part in various events like Painting, Music, Musical Chair, Lemon- spoon race, Picking up toffies and 50 Meter race. The competitions were held for 3 age groups and prizes were awarded to children securing first and sec-



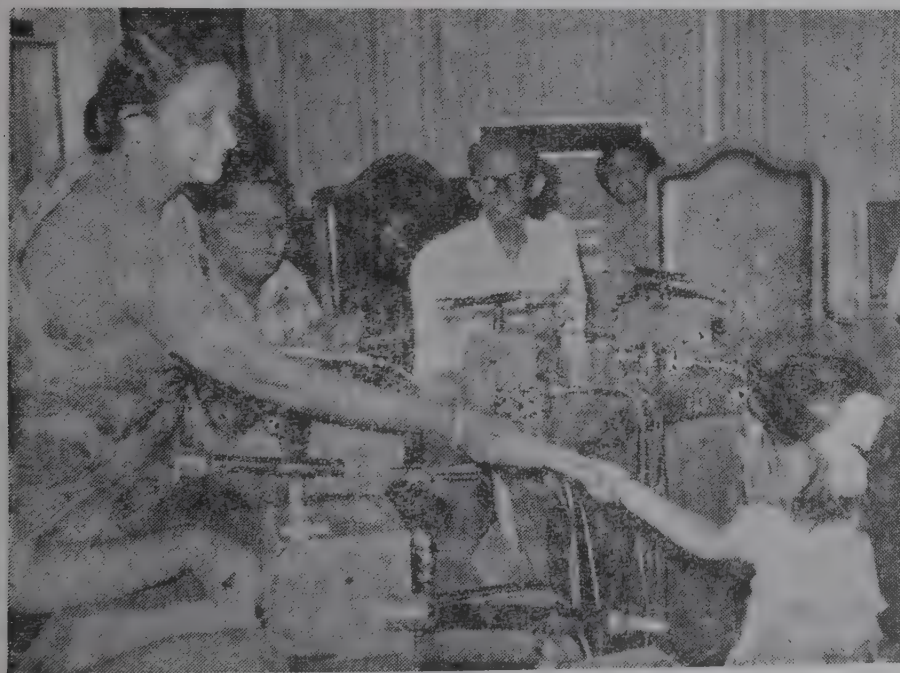
*Good start for a 50 meter Race*

ond places in various items, by Mrs. Gracy Kurian.

On December 30, a very interesting picnic was arranged for children. 63 children along with parents numbering 53 went

on a sight-seeing tour to Peechi Dam via. Trichur. On the way up the children and parents made a brief visit to CPCRI, (Kannara).

A committee consisting of Shri. K. Mahadeva Iyer, (Leader), Dr. K. Ravindran, Dr. K. Gopakumar, Shri H. Krishna Iyer, Smty A. Lekshmy Nair, Shri James Abraham, Shri P. A. Uthup and Shri T. K. Sayed Ali was set up to carry out various programmes envisaged.



*Mrs. Gracy Kuriyan distributes Prices to the winners.*

Bombay and Burla Centres of C. I. F. T. also celebrated the year by distributing note books, stationery, biscuit and sweets to children of their staff on 15th August, 1979 and 14th November, 1979 respectively, the expenditure on this was met by subscription collected at the respective Centres.

## S. Ayyappan Pillai



Shri S. Ayyappan Pillai, Scientist S-2, is holding charge of the Engineering Division of the Central Institute of Fisheries Technology, Cochin.

After his graduation in Electrical Engineering with First Class from the Kerala University, he served as Lecturer in the Govt. Polytechnic, Kottayam for some time before joining C. I. F. T. Joining C. I. F. T. in

1963, he was in charge of Processing Engineering Section in which he was associated in the development of equipments for Fish Processing. He has worked with Mr. C. G. Tucker, FAO Expert, on Accelerated Freeze Drying, in the studies on freeze drying of fishery products and in preparing the feasibility studies on the development of commercial freeze drying plants.

## Recipe for shark fin soup

### Sweet Corn Crab with Shark fin

#### Ingredients

- |                                   |   |                        |
|-----------------------------------|---|------------------------|
| 1. Shark fin rays                 | - | 15 g.                  |
| 2. Sweet corn (cream style)       | - | 1 tin                  |
| 3. Crab meat                      | - | 200 g.                 |
| 4. Sugar, salt and pepper (white) | - | to taste               |
| 5. Ajinomotto                     | - | a pinch                |
| 6. Soya sauce                     | - | $\frac{1}{4}$ teaspoon |
| 7. Egg                            | - | 2 Nos.                 |
| 8. Corn flour                     | - | for thickening-        |

#### Method

Take 1000 ml fish stock.  
Add sweet corn and crab meat

to the stock kept on a fire.  
Add salt, pepper and ajinomotto to taste and allow to boil. Add soya sauce taking

care not to spoil the colour of the soup. To the boiling mixture, add shredded shark fin rays. Thicken the boiling mixture with corn flour after dissolving the sauce in cold water. (The consistency of the soup should be a wooden spoon coating consistency).

Beat eggs in a bowl and the same to the boiling soup at the same time stirring the whole mixture. (Serve with chilly sauce or chilly vinegar)

(This is sufficient to serve for 4)





He has developed several Fish Processing equipments like different types of driers, Refrigerated Sea Water Plant, Automatic Brine Dispenser etc.

Shri Pillai has participated in the International short term Training course on the application of Refrigeration to Fruit, Vegetables and Fish in South East Asia conducted by FAO & International Institute of Refrigeratic held at Central Mechanical Engineering Research Institute Durgapur, in January 1974.

Shri Pillai has been associated with several F. A. O. Projects. He was closely associated with the development of chilled sea water system on board carrier vessels for preservation of purse seine catch sponsored by F. A. O.'s Pelagic Fishery Project, Cochin. Similarly he was associated with the calibration of acoustic instruments on board Rastrelliger, the research vessel of the Pelagic Fishery Project.

Shri Pillai had been the lecturer and the external examiner of the Calicut University for the B. Tech Fisheries Course. He has been the lecturer for Cochin University also for the

M. Sc ( Industrial Fisheries ) Course.

In 1976, the Processing Engineering Section and the Mechanical Engineering Section of the Craft & Gear were merged to form the Engineering Division. Shri Pillai has been holding the Division from its inception and his activities since then have been widened. He has been associated with the development of machinery on board fishing vessels over and above the repair and maintenance of the fishing fleet of the Institute.

As per the Indian standard Regulations, C. I. F. T. has been authorised to carry out both type testing and fishing - cum - endurance tests on all the marine diesel engines used in fishing vessels. Shri Pillai along with his colleague of the Engineering Division has been carrying out such tests and all the engine manufacturers are fully co-operating with CIFT for such tests. Technical guidance in modifying the engine and stern gear for better performance has been imparted and the engine manufacturers as well as boat owners are benefited by such close co-operation.

Ever since he joined

CIFT Shri. Pillai has been associated in the construction of the permanent building of the Institute at Cochin. He was responsible for designing various Laboratories, workshops, Divisions, Sections Etc. Within the building every minute details were worked out by him before these were implemented by CPWD, which had constructed the building.

The architect of the prestigious Conference Hall of the Institute was Shri Pillai, who with the able guidance of Shri G. K. Kuriyan, then Director of the Institute, has designed one of the best halls in Cochin area.

Shri Pillai has published more than a dozen papers, one of which was presented and read at the XV International Congress of refrigeration held at Venice during September 1979. He is member of many Scientific and Professional Societies such as the Institution of Engineers (India) Indian Institution of Plant Engineers, Indian Cryogenic Council, Society of Fisheries Technologists (India) Indo-German cultural Society etc.



# GLEANINGS FROM OTHER JOURNALS

## Deepseas Fishing Harbour in Bombay planned

The Government of Maharashtra plans to build a deepsea fishing harbour at south of Bombay. The Project includes a 1000 m jetty and facilities for repairs, ice making, cold

storage, freezing and fish meal production. It is expected to be completed in about two years.

—Indian sea foods

---

## Plundering of the ocean must stop

The Bonn Government spends about 80 million D M a year on research and development in the fisheries industry. The main target of the cash is the Federal Research Agency for Fisheries in Hamburg, which concentrates on the biological monitoring of sea fish stocks.

About 40 million tonnes of fish is caught every year to provide food for 4,200 million people. In order to ensure that the world's population of 6,500 million in the year 2,000 has enough to eat, the fish "harvest" will have to be doubled. Fishery experts believe this quantity can be achieved quite easily if an end put to the indiscriminate plundering of the oceans' riches

and fish protection and breeding is planned on a longterm basis

For centuries, it was thought that the world's massive oceans and seas contained inexhaustible wealth in fish. But only a few decades have sufficed to show the limits of growth in this sphere too and cause fishery experts to do some rethinking. Rapid development of new fishing techniques and the increasingly fast build-up of huge fishing fleets capable of spending many weeks at sea and processing and storing their catches have caused the annual catch to be doubled to more than 75 million tonnes worldwide. In the old days, experience and luck were the main criteria for tracking down big shoals. Today, electronics are

used to locate them and control the nets.

The result has been a major decimation of fish stocks and some species have vanished from the oceans forever. Many regions close to the coasts have been swept clean of all fish life. Furthermore, industrial waste pouring into the sea has stopped natural reproduction processes. The European Community (EC) even found itself with no alternative but to impose fishing bans to protect vital North Sea herring stocks

Additionally, 200-mile zones have been imposed along the coasts of most seaboard countries to restrict fishing activities. The battle for catch quotas has begun.

In the Federal Republic of Germany, where the fishing industry employs some 30,000 people, early attempts were launched to adapt to changing conditions. Research ships explore new specialised sectors; hitherto unknown types of fish are being tried out on the market and major Public relations campaigns are run to prepare the general public for coming changes.

— IN — Press



# Catalogue of Implements/Machinery for Fish harvest and Post harvest Technology

CIFT has been publishing special Bulletins on the Research work done in the various disciplines since its inception. The latest in this series is a "Catalogue of implements/Machinery for fish harvest and Post harvest Technology". (Special Bulletin No. 7)

letin No. 7)

The bulletin is a comprehensive catalogue of machines developed at this Institute for use in fisheries research and development. It contains description, design, function, power

requirement and cost of such machinery which can be indigenously fabricated. The details have been compiled and classified under the following heads:

1. Electronic instruments for fishery by hydrographic

## Fisheries Development Projects in Orissa

The world Bank has cleared an Inland Fisheries Development Programme in Orissa. This five-year project aiming to take up Inland Fisheries Programme in 16,000 acres also envisages the formation of a fish seed corporation to supply quality fingerlings to entrepreneurs.

The Orissa State Government will also be giving top priority for two schemes for developing fisheries in and around Chilka Lake. The scheme will be carried out by the Orissa Maritime and Chilka Area Development Corporation. One of the projects will develop

fisheries in brackishwater. The other aims at exploiting the offshore and deep sea fishing potential in the coastal area adjoining the lake. The construction of a fishing harbour near the lake is also included in the project.

—Indian sea foods

But the main attention is being devoted to protection of stocks in traditional fishing grounds on the flat continental shelves. Other aspects of this switch from "hunter to protector" are aquacultures and fish farming, which fishery experts regard as an almost providential alternative to sea fishing.

Because fish-farming is still relatively new, there's great public interest in unconventional solutions. The Press recently reported on a German farmer's scheme to breed trout - a popular clear water fish - not in

reservoirs but in "hammocks" coated with layers of synthetic. The advantages lie in the small space required and the rapid growth of the fish - they take half the normal time to mature. The fish are fed on dry meal composed of algae, soya, maize and krill, tiny crabs from the Polar regions. The idea has provided capable of developing and similar facilities have already been set up in Switzerland and Brazil.

Already, some six million tonnes of fish, crabs and mussels are produced annually

through controlled breeding in closed-off areas of water or underground - cages. The UN Food and Agriculture Organisation (FAO) estimates that this could be boosted to 30 million tonnes.

Another example is to be found in the Federal Republic of Germany: the warm water emerging from the cooling towers of power stations is being used in three separate projects for the breeding of fish and oysters. The fish grow much faster in warm water. This scheme is backed by a detailed fishery research programme.



- |  |  |   |
|--|--|---|
| investigations.  | 6. Electronic instruments for watch keeping in fishing boats.      | fish processing.  |
| 2. Electronic instruments for testing and standardisation of fishing gear. | 7. Electronic instruments for behaviour studies of marine animals. | 10. Other equipments.   |
| 3. Electronic instruments for commercial fishing.                          | 8. Electronic/electric equipments for fish processing factories.   | Many organisations, Institutions of public and Private sectors have come forward to get the technical know-how and feasibility reports of these equipments. |
| 4. Equipments for electronic/light sound fishing.                          | 9. Mechanical equipments for                                       |   |
| 5. Mechanical deck equipments.   |  |   |

## CIFT is at your Service

*It transfers Fishery Technology by way of:*

- Demonstrations of Fishing and Fish Processing techniques evolved by it
- Answering Technical queries
- Supplying project reports and design drawings
- Training courses on fishing and fish processing

*Please contact*

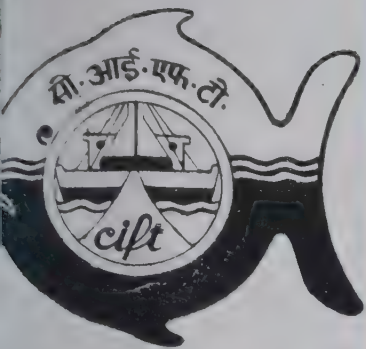
Director,  
C. I. F. T.,  
Matsyapuri P. O.,  
Cochin - 682029











# Fish Technology newsletter

Vol. II No. 7

JANUARY-MARCH 1980



Improved method of drying fish. Demonstrations by CIFT Scientists at Kakinada, Andhra Pradesh (Report on page 4)

**CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY**  
MATSYAPURI P. O. COCHIN - 682 029

## CONTENTS

	Page
1. Foreword	3
2. Lab - to - Land Programme of CIFT	4
3. Giant Ray Fish netted	7
4. New Trawl Resources off Veraval-II Ribbon fishes	7
5. Fish Dehydration Plant Commissioned	8
6. Problems and Prospects of Mechanised Fishing in Kerala	9
7. Marine Paints Plant Commissioned	10
8. Let's Talk it over	11
9. Gleanings from other Journals	12
10. Meet Our Scientists	13



# Foreword

## EDITORIAL COMMITTEE

Shri R. BALASUBRAMANYAN  
*Chairman*

Shri K. C. PURUSHOTHAMAN  
*Secretary*

Shri P. MADHAVAN  
*Member*

Dr. P. N. KAUL  
*Member*

Photography Shri K. BHASKARAN

Art Shri G. MOHANAN

Fish Technology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Editorial Committee.

Abbreviation: Fishtech News

# LAB - TO LAND PROGRAMME OF CIFT - 9

*One of the highlights of the Golden Jubilee celebrations of the Indian Council of Agricultural Research observed last year was a country-wide programme of transfer of Technology known as the Lab-to-Land programme to which CIFT is also contributing in a humble way. In the previous issues we published reports on such programme held at Mangalore, Bombay, Kumarakom, Calicut, Kumbalam, Vaikom, Veraval, Madras and Cochin. In this issue we present a report on programmes taken up at Kakinada, Andhra Pradesh.*



Dr. C. C. Panduranga Rao, Scientist in Charge, Kakinada Research Centre welcomes the gathering. Next to him (sitting) is Shri V. S. Dovara, General Manager, Boat Building Yard, Andhra Pradesh Fisheries Corporation.

On the recommendation of the State Fisheries Dept, Nemmam, a village 14 km. away from Kakinada was selected for implementation of the Institute's Lab to-Land Programmes.

About 100 fishermen families inhabit this village. Almost all houses are thatched huts situated near the sea shore. Only two of the houses are

electrified and for the entire village, one tube well serves as the source of drinking water. The village has got a Fishermen's Co. operative Society for the benefit of the local fishermen. The only type of craft being used is the traditional catamaran (12' 15' long), built of four logs of "Nidraganneru" wood and employing nylon gill nets, cast nets or cotton seine nets.

Fishing season extends from September to March and catch comprises mostly of mackerel, seer, cat fish, prawns, sciaenids, crabs etc. Nearby canals and ponds are also used for fishing and during non-fishing season, the fishermen work as labourers in the field.

The lab-to-Land programmes of this Institute proved to be the first source of assistance for the village both technological as well as monetary. The first part of the programme was inaugurated on Nov. 21, 1979 by Shri V. S. Dovara, General Manager, Boat Building Yard, Andhra Pradesh Fisheries Corporation, Kakinada. Under this programme, the following demonstrations were held.

- 1) PACKING OF FRESH FISH IN IMPROVED CONTAINERS FOR LONG DISTANCE TRANSPORTATION

The indigenous methods of transportation do not ensure safe delivery of fish in a





A Fisherman receives multi-mesh gill net.

proper condition. The improved method of packing fish and ice in thermocole insulated plywood containers was demonstrated and few containers distributed to members of the Fishermen Co-operative Society for trials.

## 2) IMPROVED METHOD OF PRESERVATION OF NET

The treatment normally given to cotton nets requires repetition very often for satisfactory results. The improved method of preservation using 5% cutch solution, copper sulphate and ammonia was therefore demonstrated.

3) The importance of utilisation of un-economical varieties of fish for preparation of speciality products like fish diamond cuts was explained to the fishermen and samples distributed.

The second part was inaugurated on November 28, 1979 by Shri C. Lakshmana Rao, Dy. Director of Fisheries, Kakinada. Shri J. V. H. Dixitulu Ex-Dy. Commissioner (Fisheries), Govt. of India, presided

over the function. Under this programme, the following demonstrations were held.

## 1) IMPROVED METHOD OF CURING AND DRYING FISH.

Normally the fish on landing, were being sold to middle men for nominal price who then sold the fish on profit after curing and drying. The fishermen were not aware of the proper method of curing. The hygienic methods of curing and drying fish worked out by the institute were therefore demonstrated for the benefit of the fishermen. The cement tubs which were used in the curing demonstrations were later handed over to the fishermen's Co.op. Society for their future use.



Packing of fresh fish in thermocole insulated plywood containers.

## 2) EXTRACTION OF SHARK FIN RAYS

The normal practice among fishermen is to sell shark fins as such to the middlemen who arrange for their export. Since the rays fetch better price, the method of extracting the rays was demonstrated.

## 3) IMPROVED METHOD OF HANGING GILL NET

The normal practice of loosely hanging the gill net webbings on ropes with knots at intervals of 30 cm. tend to cause distortion to the ratio of take-up. The improved method worked out for hanging gill nets was exhibited using models and their advantages explained.

## 4) IMPROVED DESIGNS OF GILL NETS

By using gill nets of just one mesh size as is normally done, it is not possible to exploit the fish resources of different types and sizes. Multi-mesh gill nets with 30, 40, and 55mm. size mesh were fabricated and distributed to the Fishermen's Society for carrying out trials.



# BOON TO CLAM FARMERS IN KERALA

For the first time in the country a private sector firm at Kundara in Quilon District has started manufacturing of protein rich clam meat pickles. It will give a boost to the earnings

of about 30,000 people of the weaker section engaged traditionally in clam meat collection from Vembanad lake. This venture is as a direct result of Transfer of Technology or other

wise known as Lab-to-Land Programme of the Central Institute of Fisheries Technology (CIFT), Cochin.

CIFT had organised a massive training programme of preparation of pickles from clam meat and its canning at Kundara in the middle of July this year and the owner of the present firm was a recipient of this technology.

It is estimated that about 2,400 tonnes of clam meat can be made available from the Vembanad lake every year.

The product is marketed in 360 gram bottles and it is expected that it will catch the home market quickly and the day may not be far off when this commodity could be exported also.

Many more entrepreneurs are expected to come forward in various regions where clams are available; with this, the change for the better for clam farmers seems on the way.



Clam pickles are ready to market.



# GIANT RAY FISH NETTED

The investigation Vessel, Fishtech No. 8, of Veraval Research Centre of CIFT caught a giant size Ray Fish from a depth of 40 metres off Veraval (North West Coast of India). The huge specimen measuring about seven metres width across the disk weighed about two tons, its liver alone weighed 160 Kgs. The fish has been identified as *Manta biroris* (Wakbaum) described as Devilray or Devil fish. It appears to be the largest ray fish to be reported from Indian waters. The pectoral fin of the mouth was 1.0 metre.

The fish was caught in the 25 M high opening trawl during mid-water trawling operation.



---

## NEW TRAWL RESOURCES OFF VERAVAL - II RIBBON FISHES

Ribbon fishes locally known as "Baga" in Gujarat State are composed of two species namely, *Trichiurus lepturus* des-

cribed as 'large-head-hair-tail' and *Trichiurus Savala* described as 'small-head-hair-tail'. Eligger size groups of ribbon fishes

form an important constituent of the bottom trawl catches off Veraval, North West Coast of India during the last three years.

# FISH DEHYDRATION PLANT COMMISSIONED

The mechanical drying of Fish has been accepted by the industry as a viable technology for better utilization of trash fish

A two-tonne capacity Dry Fish Plant designed by the Central Institute of Fisheries Technology (CIFT), Cochin has been recently commissioned at Navabunder near Veraval (Gujarat).

Installed by the Gujarat Central Cooperative Association (GFCCA), Ltd, the plant

comprising of two drying unit in one tonne each is for the production of dehydrated Bombay Duck (laminated; mainly for export to European countries.

Shri P. K. Chakraborty, CIFT Scientist who designed the dryer was associated with GFCCA for installation and Commissioning of the plant.

Two fish drying plants of one-tonne capacity each as per CIFT design and technical supervision have already been installed by Integrated Fisheries

Project (IFP), Cochin and M/s. Vee Luck Food Processions Ltd, Aroor near Cochin. A few more plants are to come up soon in the country.

CIFT will supply complete technology for installing of fish drying plant to interested parties. The tunnel dryer designed by CIFT is simple in design without any imported components and can be fabricated in any good workshop in the country. □

Earlier reports indicated the catch of ribbon fishes as insignificant in the trawl catches along the North West Coast of India. Significant catches of bigger size groups of ribbon fishes were recorded by the experimental bottom trawls operated by the Veraval Research Centre of CIFT during 1977-1979. A range of monthly average catch per unit effort of 1.4 Kg/hr. to 59.1 Kg/hr. with an average percentage composition of 2.20% to 49.90% were obtained during this period. The maximum catch was obtained during March-May, 1977 and the lowest in December, 1978. Highest catch per

unit efforts of 470 kg/hr., 282 Kg/hr and 240 Kg/hr were landed by the 25 M bulged Belly Trawl, the 25 Six-Seam Trawl and 32 M Large Mesh Demersal Trawl, during April 1977 November, 1977 and March 1978 respectively. These catch indices and the average catch Per unit efforts are quite comparable with that of the catch of ribbon fishes obtained by such larger trawl like M. T. MURENA along the North West Coast during 1977.

Bigger size groups ranging from 550 mm and above in total length and weighing 225 gms and above are only accounted in this fishery as they only will be counted and marketed in

numbers, while the smaller size groups are being unaccounted as they are being disposed off along with the small miscellaneous 'mix' generally known as "Dhona". The important size groups forming the fishery of commerce of Ribbon fishes are of the sizes ranging from 820 mm to 950 mm in total length and weighing 450 gms to 800 gms.

Ribbon fishes are being Valued at a lower rate. Prices offered varied only from 12 paise to 25 paise per fish during 1977-1979. Ribbon fishes are being sun dried and sent to various internal markets. □



# 'Problems and Prospects of Mechanised Fishing in Kerala'

## The First Seminar

### A REPORT

All Kerala Federation of Mechanised Fishing Boat owners Association organised a seminar on the "Problems and Prospects of Mechanised Fishing Industry in Kerala" on February 29 this year at the CIFT Conference Hall, Cochin. Shri S. Krishnakumar I. A. S., Special Secretary to the Govt (Fisheries, Ports, Social Welfare) inaugurated the seminar which was presided over by Shri R. Gopalan, President of the Federation. Shri R. C. Choudury I. A. S., Chairman, MPEDA and Shri G. K. Kuriyan, Director,

CIFT were the moderators. Among the dignitaries who participated in the Seminar were Shri U. Mahabalarao, Chairman, Cochin Port Trust, Shri. S. N. Rao, Director of Fisheries and presently the Director, MPEDA, and Shri. A. G. Vasavan the then Managing Director, Kerala Fishermen Welfare Corporation Limited and presently the Director of Fisheries. The Senior Scientists of MPEDA, CIFT and CMFRI who presented papers at the Seminar include Dr. M. J. George and M/s. R. Balasubra-

manian, C. Ramakrishnan, K. N. Kartha, N. Subramania Pillai, Dr. K. Ravindran, N. Unnikrishnan Nair, A. G. Gopalakrishnan Pillai, S. Ayyappan Pillai, P. A. Panicker, N. A. George and T. M. Sivan. Shri C. N. Ravi, Divisional Manager New India Assurance Company also took part in the discussions at the seminar. Over a hundred fishing boat owners representing their associations at Calicut, Munambam, Vypeen, Cochin, Alleppey and Quilon actively participated in the Seminar.



---

## FAO ASSIGNMENT FOR CIFT SCIENTIST

The Central Institute of Fisheries Technology (CIFT) Cochin has rendered the services of its Chemical Engineering Scientist, Shri P. K. Chakraborty to FAO for technical Consultancy service on Fish drying technology.

Shri Chakraborty was sent to FAO/SIDA Project on small

scale Fisheries in Bay of Bengal at Madras during February-March this year with an assignment to review the Fish drying practices in the Project area and suggest improvements and to prepare detailed plans of initial activity to be taken up by FAO.

Following an extensive field study Shri Chakraborty recommended for a complete change over from unhygienic sun drying on the ground to drying on raised platform, solar tent dryer and also adoption of modern mechanical fish drying, a technology developed by CIFT for immediate implementation by FAO.

## MARINE PAINTS PLANT COMMISSIONED



Shri G. K. Kuriyan (extreme right) Director, CIFT, Cochin, Commissioning the Plant by pressing a button.

The new plants set up by M/s Synthetics & Isolates for production of marine paints has been commissioned at Aroor, in Alleppy District.

Besides the production of Anticorrosive and antifauling paints which are indispensable for the protection of fixed off shore structures, jetties, marine

installations, ocean-going ships and numerous fishing vessels, the organisers have embarked on a phased programme which includes the manufacture of synthetic resins, intermediates and polymers.

While commissioning the plant on March 19, 1980, Shri G. K. Kuriyan, Director, CIFT emphasised the need for optimum use of raw materials since the paint industry was raw material intensive.

He pointed out that petrochemical based on solvents were not only becoming dear but were in addition difficult to procure. The rising cost of paints must be a matter of concern to all. Therefore, "Optimising the quality of paints, bearing in mind the actual service requirements, is a matter of utmost importance" he said.



## MARINE APPLICATIONS OF FERROCEMENT

The Journal of Ferrocement is published quarterly by the International Ferrocement Information Centre (IFIC) at the Asian Institute of Technology (AIT) in collaboration with the New Zealand Ferro Cement

Marine Association (NZFCMA). The objective of the journal is to disseminate the latest research findings on ferrocement especially in the developing countries.

Further details from  
The Editor  
Journal of Ferrocement,  
International Ferrocement  
Information Centre,  
Asian Institute of Technology,  
P. O. Box No. 2754,  
Nangkok, THAILAND.



# LET'S TALK IT OVER

M/s. GECO Engineering Company Pvt. Ltd. Mangalore.

What types of nets are popular at present in India?

What are the twines, twine size and mesh size for different nets?

CIFT: The types of nets popular in use at present are trawl nets, gill nets and purse seines. Particulars of the recommended twines, twine size and mesh size for the different nets are given below.

It is always better to fabricate webbings of standard design rather than going for ready-made nets. The depth or width of net webbing usually depends on the type of machine used for fabricating the webbings, ie; whether it is 1000 meshes, 750 meshes or 500 meshes etc that can be fabricated in one row. The length of the webbing is indefinite, ie; webbings of any length can be prepared within the available width (Meshes).

## Details of webbing

Nylon twines of 210/1/2, 210/1/3, 210/2/2, 210/2/3 in mesh size of 100-220 mm

Nylone twines of 210/2/3, 210/3/3, 210/6/3, 219/9/3 in mesh sizes 30-150 mm

Nylone yarns of 100, 210, 420  
Nylone twines of 210/2/2

Nylone twine of 210/2/3 to 210/6/3 in mesh size 20-70 mm

Polythlene twines of 0.75, 1.0, 1.25, 1.5, 2.0 and 2.5 mm dia. of 25-130 mm mesh

## Used for

In land gill nets.

Marine gill nets for Sardine, Mackerel, Pom Fret, Seer, Lobster, etc.

as knotless  
nets in mesh  
sizes 16 2 mm

Purse seine for sardine and mackerel

Tuna  
Purse seine

Trawl nets.

G. Vijayaraghavan,  
Naudyal Bone Mill,  
Gangavaram, A. P.

Crude protein	: 40%
Ash	: 31%
Chitin	: 23%
Fat	: 6 %

We shall be highly obliged if you can kindly arrange to advise us the analysis of prawn Shell Powder and about its application in Poultry Feeds.

Poultry feed is usually prepared by mixing the following items in proportion as indicated.

CIFT: The general composition of prawn shell powder on dry weight basis is given below:

Prawn shell Powder	: 26%
Fish meal	: 11%
Tapioca starch	: 36%
Rice Bran	: 25%
Molasses	: 2 %

## OBITUARY

Shri Chandu Lal Govindji Tank, Senior Field Assistant, of the Veraval Research Centre of CIFT passed away on Jan-

uary 13th 1980 following a short illness. He was 42.

He joined the Veraval

Research Centre as Lab-Assistant in 1962. In November, 1979 he was appointed as Senior Field Assistant. □

# GLEANINGS FROM OTHER JOURNALS

## Development of Fish Culture in Palghat District

The Fish Farming Development Agency has launched a programme for developing fish culture in rivers, ponds, etc. in the villages in Palghat District.

This Centrally sponsored scheme with its headquarters at Keenkara will impart training to interested farmers in all stages of fish culture from digging ponds to selling fish.

Loans worth Rs. 10,000/- for digging ponds and Rs. 1,250/- towards purchasing and rearing of fingerlings will be made available by the agency.

— HINDU

---

## Consultation on Fish Identification ends

The expert consultation on field identification of economically-important fishes of the western – Indian Ocean concluded in Cochin.

Thirty three experts from 17 countries including India participated in the month-long consultation programme held

at the Central Marine Fisheries Research Institute, Cochin, under Food and Agriculture Organisation and Danish international development agency.

Addressing the valedictory function, Dr. W. Fischer, FAO convener of the expert consultation, said the Scientists, who

participated in the programme, had completed identification of commercial aquatic organisms in the western Indian Ocean and hoped this would help the countries in the region—

— INDIAN EXPRESS

---

## Counting Krill

Professpr Gothilf Hempel arrived in Buenos Aires recently to start preparations for the largest census ever taken. He and colleagues from the USA, the Soviet Union, Argentina, Chile, and South Africa will be estimating the Krill stocks in the Antarctic.

The small polar crab is

considered by many scientists to be the Potentially biggest source of protein for mankind.

Bonn has pumped large amounts of money into research on the Krill in recent years.

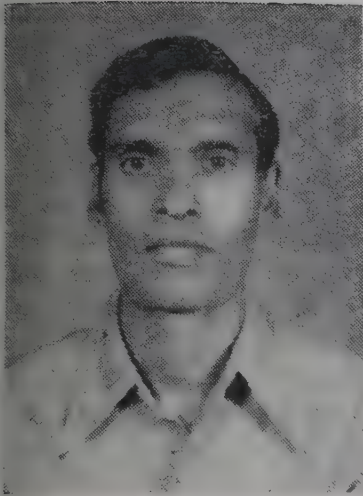
Norwegian Scientists have found high amounts of fluoride in the krill.

According to research at the National Fishery Research Centre in Hamburg, it would be unadvisable therefore to eat krill unprocessed.

However, once processed into pastes and similar products, the krill would not represent any danger to the health of those who eat it.



## V. C. GEORGE



Shri Valiaveetil Chacko George, born and brought up in Narakkal, Ernakulam Dist, Kerala State had his M.Sc. (Marine Biology and Oceanography) from Kerala University. He had his technical education and training in fishing gear tech

nology in India and abroad under F. A. O. Fellowship. He has also specialised in instrumentation and methodology in fishing gear technology.

Joining the Central Institute of Fisheries Technology in 1958 he had widely travelled in India in connection with small scale fisheries both marine and inland. Shri George had the opportunity to work in many research centres situated along both the coasts and interior.

In his professional field he has pioneered many ventures. This includes introduction of trawling in Indian reservoirs and standardisation of the technique for the estimation of fish production from reservoirs. Apart from this Shri George has also

worked on small boat trawls in marine waters, mesh regulation in backwaters prawn fishing gear, optimisation of fishing gear in reservoirs including control and eradication of unwanted fishes.

At present Shri George is working as Scientist-S2 at Burla Research Centre of CIFT. He is also the Scientist-in-Charge of the above Research Centre since 1975.

Shri George has more than a dozen Publications to his credit, in addition to two monographs on Indian Fishing Technique. He has also contributed to the F. A. O. Catalogue of small Scale Fishing Gear. He is also a guest lecturer to Cochin and Sambalpur Universities on Fishing Gear Technology.

At the end of the year ten research ships, including the Walter Herwing and the Meteor from Federal Republic of Germany, will set off for the huge krill Census.

This action is the beginning of a joint research project from which the six countries involved hope to gather new information and insights on the ecological system of the Antarctic.

— GERMAN FEATURE

## Rich Prawn Grounds Located

Rich prawn grounds off Kerala, Orissa and West Bengal have been located by the Exploratory Fisheries project, under the Union Ministry of Agriculture, it is officially learnt.

The project vessels have surveyed 90 percent of the depth zone 10-40 fathoms

(beyond the fishing zone of fishermen) of the entire Indian coast for bottom fish (demersal fish including shrimps). With the extension of the economic zone up to 200 miles from the coast, the project is employing larger fishing vessels for exploratory fishing and exploitation of the resources of this zone.

— HINDU

# Future Fish Demand

According to recent FAO projections, food fish demand will increase to about 70 million tons in 1985 and 110 million tons by 2000, compared with 50 million tons consumed

in 1972-74. The share of developing countries in world food fish consumption is expected to increase from 25% in 1972-74 to 35% in 2000. The potential of marine fish

production is estimated at around 110 million tons with a likely harvest of only 50 million tons.

— SEA FOOD NEWS LETTER

## Fish Processing Complex at Paradeep

Construction of the fish processing factory complex of the Orissa Maritime and Coastal Area Development Corporation has started on January 4, 1980. The project with an estimated

cost of US \$ 1.73 millions envisages the deployment of six deep-sea trawlers and the setting up of a cold storage, an ice plant, a processing unit, a fish meal plant, a fish drying unit

and a packing, distribution and export unit. This complex will handle about 12,000 tonnes of fish a year.

— INDIAN SEA FOODS

## CIFT Appointments, Promotion & Transfers

### Appointments:

1. Kumari K. Chandini - Junior Clerk (Hindi Typist-Headquarters)
2. Shri P. Joseph Paul - Technician - 1 (Carpenter - Headquarters)
3. Shri T. Gangadharan - Technician III (Sr Lab. Asst. (Veraval Research Centre))
4. Shri Baiakrishna Bhoi - Tech-1 Mechanic (Burla Research Centre)
5. Shri Thomas J. Mamootil - Tech-II (Head quarters)
6. Shri M. K. Sasidharan - Technician-II (Head quarters)

7. Shri V. Gopalakrishnapillai - Technician-II (Calicut Research Centre)
8. Shri T. John - Technician-II (Calicut Research Centre)
9. Shri A. Verranjaneevulu - Technician II (Kakinada Research Centre)
10. Shri V. V. Ramakrishna - Technician II (Kakinada Research Centre)
11. Shri G. P. Vaghela - Technician II (Veraval Research Centre)
12. Shri P. T. Sebastian - Technician II - Headquarters
13. Shri V. Gasper - Technician II - Headquarters

14. Shri Padmanava Sadana - SS Grade-I (Burla Research Centre)

15. Shri S. Sadanadan, Supd. CIFT Asst. A. O. ICAR Research Complex, Shillong.

### Promotion:

1. Shri P. S. Alias, Technician I, Promoted as Technician II-3 at Headquarters.

### Transfers:

1. Shri Sarvagha Seth, SS Grade III was transferred from Burla Research Centre to Kakinada Research Centre.



Statement relating to ownership and other particulars about the periodical, Fishtechnology Newsletter, as required by the Registrar of Newspapers of India

## Form IV (See Rule 8)

- |   |  |
|---|--|
| 1. Place of Publication   | : Central Institute of Fisheries Technology, W/Island, Cochin—29 |
| 2. Periodicity of Publication   | : Monthly  |
| 3. Printer's Name   | : K. C. Purushothaman  |
| Whether citizen of India  | : Indian   |
| Address   | : Central Institute of Fisheries Technology, W/Island, Cochin—29 |
| 4. Publisher's Name   | : K. C. Purushothaman  |
| Whether citizen of India  | : Indian   |
| Address   | : Central Institute of Fisheries Technology, W/Island, Cochin—29 |
| 5. Editor's Name  | : K. C. Purushothaman  |
| Whether citizen of India  | : Indian   |
| Address   | : Central Institute of Fisheries Technology, W/Island, Cochin—29 |
| 6. Name and address of individuals who own the newspaper and partners or share holders holding more than one % of total capital | : Central Institute of Fisheries Technology, W/Island, Cochin—29 |

I, K. C. Purushothaman, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Sd/-

(K. C. PURUSHOTHAMAN)

Signature of Publisher

Date: 15-2-1980

Edited and published by K. C. Purushothaman, Editor-Cum-Information Officer, for the Director Central Institute of Fisheries Technology, Matsyapuri P. O., Cochin - 682 029 and Printed by him at Parimala Printers, Mamangalam, Cochin - 682 025, Kerala.







# Fish technology newsletter

Vol. II No. 8

APRIL-JUNE 1980



CIFT Scientist demonstrating the canning technique for mussel meat at Elathur Village, Calicut, under Lab-to-Land Programme (Report on page 4)

**CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY**  
MATSYAPURI P. O.

COCHIN - 682 029

## CONTENTS

	Page
1. Foreword	3
2. Lab-to-Land Programme of CIFT	4
3. Curriculam on Fishing Craft Technology	7
4. Improved types of Catamarans	10
5. Workshop on Reservoir Fisheries	11
6. Reservoir Fisheries	12
7. Gleanings from other Journals	15
8. Let's ta'k it over	16
9. Meet our Sceintists	17
10. What they have to say about CIFT	18



# Foreword



## EDITORIAL COMMITTEE

Shri R. BALASUBRAMANYAN  
*Chairman*

Shri K. C. PURUSHOTHAMAN  
*Secretary*

Shri P. MADHAVAN  
*Member*

Dr. P. N. KAUL  
*Member*

Fish Technology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Photography Shri K. BHASKARAN

Art Shri G. MOHANAN

Abbreviation: Fishtech News

Editorial Committee.

# LAB - TO LAND PROGRAMME OF CIFT - 10

*One of the highlights of the Golden Jubilee celebrations of the Indian Council of Agricultural Research observed last year was a country - wide programme of transfer of Technology known as the Lab - to - Land programme to which CIFT is also contributing in a humble way. In the previous issues we published reports on such programme held at Mangalore, Bombay, Kumarakom, Calicut, Kumbalam, Vaikom, Veraval, Madras, Cochin and Kakinada. In this issue we present a report on programmes taken up at Elathur, Kerala.*



Inaugural address by Shri P. S. Sreenivasan, Minister for Revenue and Fisheries

A three-day training-cum-demonstration in various methods of processing mussel meat was conducted at Elathur, 8 kms from Calicut.

The object of the programme was to enable the villagers of Elathur to take up mussel meat processing on scientific lines on a commercial or semi-commercial scale, and to enable the

consumer to get a better product with greater shelf-life and better nutrition.

Thirty three persons including six women participated in the training on various methods of mussel meat processing viz drying, smoking and drying, making pickles, making chutney and canning.

The participants were selected from the following associations.

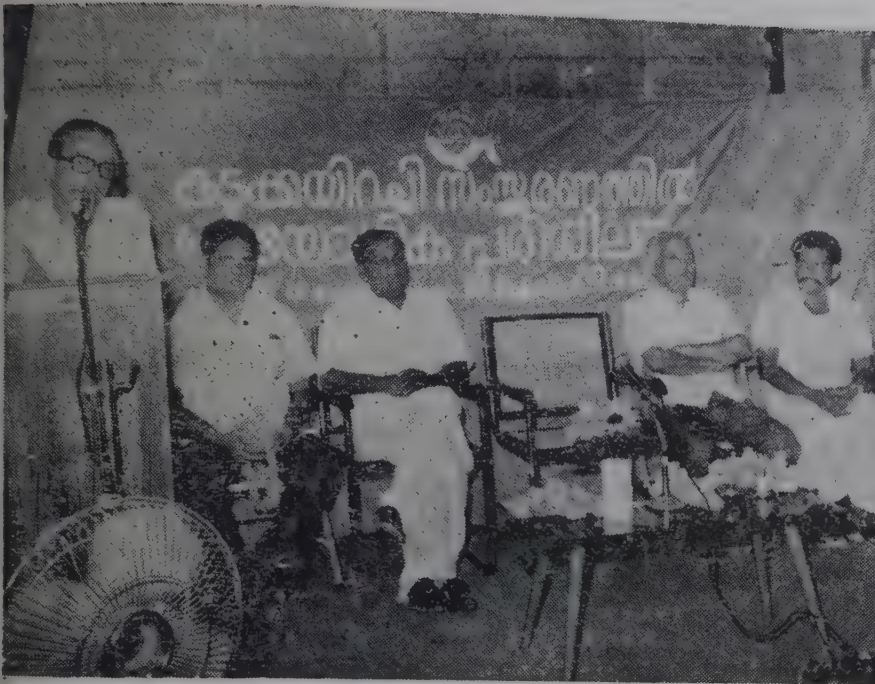
1. Elathur Kaduka Thozhilali Union, Chettikulam, Calicut
2. Kadukka Thozhilali Union, CITU, Elathur.
3. Elathur Kadukka Thozhilali Union.
4. Badagara Taluk Matsya Pravarthaka Mahila Samajam

The programme was inaugurated by the State Fisheries Minister, Shri P. S. Sreenivasan, in a meeting held at Elathur National L. P. School on April 19, 1980.

Speaking on the occasion Shri Sreenivasan said the Government had decided to increase the Fisheries resources of the State at least by two times of the present catch.

"Leaving aside the forest resources, Fisheries sector is the second important source of income to the state. It requires less investment and can provide more employment to the people" the Minister said.





Presidential address by Shri A. C. Shanmugha Das, Minister for Community Development

He promised all sorts of help from the Government for the development of fisheries Industry in the State. He asked the Scientists of both Central and State Governments to work together for better production and utilization of fish in the Inland water resources of the State.

Presiding over the function Community Development Minister, Shri A. C Shanmugha Das, emphasised the need of utilizing CIFT's technical help in the processing sector too as to create more employment potential in the state.

CIFT Director, Shri G. K. Kuriyan, welcomed the gather-

ing. He said the Lab-to-Land programmes conducted by the institute in various centres of the country have benefited over 500 families, especially

the weaker sections of society, to improve their economic conditions and living standards "The programme will continue for another two years", he assured.

Calicut District Collector, Shri K. M Balakrishnan, Elathur Panchayat President, Shri K. Krishnan and Chevayoor Block Development Officer, Shri M. P. Moideen Koya, also spoke. CIFT Joint Director Shri M. R. Nair, expressed the vote of thanks.



Trainees frying mussel meat for making pickles

# Newest MARCO Combination vessel fishing for Alaska Tanner Crab

The COLUMBIA, the latest 122-foot combination fishing vessel built by MARCO Seattle, was christened recently by Kris size Fuller, daughter of one of the owners.

The all-steel vessel is outfitted for crabbing and for packing salmon and herring. Owners of the vessel include Charles Sundland, Phila Fuller, William Howell, Don Leuchford, Kline Ness, George Schmidt and Don Torkel.

Dave Koops, experienced North Pacific fisherman and skipper of the COLUMBIA, is fishing the new boat in the current Alaska Tanner crab season and will deliver his catch to Tidwell Seafoods in Akutan, Alaska. Later the COLUMBIA will pack herring and salmon before participating in the 1980 Alaska King crab season.

## MAIN PROPULSION SYSTEM

The COLUMBIA is powered by a Caterpillar D399 turbo-charged and after-cooled diesel engine that develops 1125 bhp and is coupled to a Caterpillar 7071 hydraulic reverse reduction gear. The vessel has a Codalet 90 Inco. Four-blade stainless steel propeller.

Auxiliary power is provided by three diesel engines, including a Caterpillar D3408 TA coupled to a 250-kw generator with a MARCO hydraulic pump drive; and a Caterpillar 3304 T with a 90-kw generator.

The COLUMBIA has three insulated holds and an 80-ton chilled seawater system for salmon and herring packing. For crabbing, the boat provides space for 200,000 pounds of live crab.

## HYDRAULIC DICK

### MACHINERY

Hydraulic deck machinery for crabbing includes a MARCO "King Hauler" for hauling crab pots, a MARCO "King Celler" for line handling, an articulated fish pot dumping rack, a box chopper, and a 12-434 Slamm crane.

Galley, mess area, stateroom, bait and food freezing stores and seven-man crew quarters are located on the main deck; pilothouse and captain's stateroom are on the fore/cle deck above.

The galley is all-electric and furnished with a large dishwasher, microwave and conventional ovens, griddles

washer and dryer, and a 1 cubic foot combination refrigerator/freezer.

The mess area is outfitted with sound and video equipment, including a cassette recorder/player, AM-FM radio and video recorder/player with accompanying color television.

## PILOTHOUSE ELECTRONICS

Pilothouse electronics includes two radars, two Loran C auto-correct, echo sounder, and two SSB radios.

In addition, the COLUMBIA has a Sperry gyrocompass and a Wagner TIS hydraulic steering system with two lag stations.

The COLUMBIA is the newest combination fishing vessel for the North Pacific fisheries MARCO has delivered this year.

[SOURCE: MARCO SEATTLE]



# CURRICULAM ON FISHING CRAFT TECHNOLOGY TEACHING TECHNIQUES AND GUIDE LINES

(Sea Fishing today has become a highly competitive business and fishing boats form the highest asset. The economic well being of the Fishing Industry lies in the efficient operation of the entire fishing fleet. To understand, appreciate, administer and able manage this, a curriculam on fishing craft technology appears

Fishing Crafts constitute a very important and essential component in the fishing industry today. Choice of fishing crafts, their acquisition, running and maintenance are important aspects in the management of

the Industry both in the small scale and large scale sectors. Sea fishing to day has become a highly competitive business and fishing boats form the biggest asset.

to be most vital. We publish a paper presented by Shri R. Balasubramanyan at the seminar on "Teaching Fisheries" held on February 22, 1980 at the Tamil Nadu Agricultural University Fisheries College, Tuticorin. Shri Balasubramanyan is senior Scientist/Scientist-in-Charge (Craft & Gear), CIFT, Cochin.)

For centuries, fishing in our coastal waters has been done from the traditional indigenous crafts like catamarans, dug-out canoes and small built-up boats in accordance with age-old customs and traditions. The success

## TAJ SEAFOODS

Taj Seafoods, managed by a group of Ex-service officers has been the latest to enter the field of export of canned Marine Products. The firm has acquired a canning plant at Palluruthy, Cochin and has already commenced exports to United Kingdom.

Recently a short training course on the various aspects of canning was conducted at the institute for the Managerial Staff of the firm at their request

Those who attended the course were full of praise of the benefits of the course and we reproduce here an excerpt from a letter received by the Director, CIFT from Commander K. G. Thomas V. S. M. I. N. (Retd), Chief Executive, Taj Seafoods

"Without reservation we wish to add that the course and the discussions on various technical points we had with your staff have been greatly beneficial to us and will go a long way in

running our canning plant on a more sound technical footing. What is more, it has given us a chance to fully appreciate the yeoman service rendered by the Institute to the fish-based industries.

We also wish to take this opportunity to thank Dr. P. N. Kaul, the Extension officer, and Mr K. Balachandran, the officer who conducted the course, for the cordiality and co-operation extended to us on your behalf."

of any efforts towards introducing more modern fishing crafts and innovated methods of fishing with newer gears is dependent on very many factors. These new changes obviously call for greater catches in order to meet the greater cost in the investment and operation there after. Increased production will also require improved facilities in the field of post harvest technology for obtaining maximum utility. Both modernization and mechanization of fishing crafts have to be studied in greater details for a proper understanding and appreciation of the connected problems. Experimental prototype fishing boats have to be built according

to approved designs and recommended specifications so as to set a standard of cost and to test the acceptability of actual operators.

Indian fishing fleet today comprises of nearly 16,000 wooden mechanised fishing boats built on proven lines in the length range of 8 to 15 meters. There are about 200 steel trawlers in the range of 17 to 30 meters in length. There are also innumerable (nearly a lakh or half a million) traditional fishing crafts operating all along the 6,000 Km. coast line of India.

An ideal and appropriate fishing boat for economical operations has to be conceived as a

result of interaction between biologists, engineers, naval architects, boat-builders and operators. A fishing boat carried on her business in an hostile environment and so is subject to periodic examination, appraisal and maintenance to keep her in a fit state for her work. To most fisherman over the world, the fishing boat represents the most important investment in his life-time. The economic well-being of the fishing industry lies in the efficient operation of the entire fishing fleet. To understand, appreciate, administer and ably manage this, a curriculum on fishing craft technology appears to be most vital

## FISHING CRAFT TECHNOLOGY

### 1. Traditional Fishing crafts of India

- 1.1. East Coast and West Coast types
- 1.2. Method of construction and cost
- 1.3. Method of operation with reference to the type of fishing
- 1.4. Cost benefit ratio
- 1.5. Scope of improvements—Motorization and Mechanization
- 1.6. Economic appraisal

### 2. General requirements for modern fishing boats

- 2.1. Type of fish located, area of fishing, method of fishing to be adopted, duration of voyage
- 2.2. Sea-conditions, weather conditions and operational facilities
- 2.3. Choice of fishing boat types like trawler, gill netter, purse-seiner; long liner, potter and for survey purposes

### 3. Choice of fishing boat designs

- 3.1. Design parameters and blue print reading
- 3.2. Displacement and powering requirements
- 3.3. Construction details - General arrangements
- 3.4. Costing

### 4. Boat building materials and their characteristics

- 4.1. Wood, plywood and allied materials



- 4.2. Steel and allied materials
- 4.3. Copper and copper based alloys
- 4.4. Aluminium alloys for marine use
- 4.5. Fibre reinforced Plastics (FRP/GRP)
- 4.6. Ferro-cement
- 4.7. Boat fastenings
- 4.8. Marine paints and coatings
5. Deterioration/Degradation of construction materials
  - 5.1 Biodegradation of materials
  - 5.2. Marine corrosion in metals
  - 5.3. Mechanical wear and tear
  - 5.4. Causes and remedial measures for the above
6. Techniques of boat construction (Wooden hull)
  - 6.1. Table of off-sets and mould lofting and making templates
  - 6.2. Back-bone assembly
  - 6.3. Template installation
  - 6.4. Hull planking
  - 6.5. Framing and other strengtheners
  - 6.6. Preparation of engine bearers and engine installations
- 6.7. Deck beams, deck planking, bulk heads, and holds and hatches
- 6.8. Wheel house and super structure
- 6.9. Rigging and out-fitting, above deck and inside hull
- 6.10. Stern-gear installation
- 6.11. Hull protection-sheathing, painting etc.
- 6.12. Pre-launch inspection and launching
- 6.13. Tests, trial runs and certification
7. General construction techniques for steel, aluminium, FRP and Ferro-cement
  - 7.1. Material specification and method of construction
8. Fishing boat maintenance
  - 8.1. Annual repairs
  - 8.2. Renewals/refitting
  - 8.3. Record maintenance-History of the boat and the machineries on board
9. General aspects
  - 9.1. Condemnation of fishing vessels : Guide lines
- 9.2. Buying of old fishing vessels : Inspection and assessment
- 9.3. Boat yard set-up, organisation and management
- 9.4. Preparation of tender documents, analytical study of tenders received
- 9.5. Legal agreement between owner and builder
- 9.6. Scope of inspection, delivery, acceptance and final payment.
10. Fishing Fleet Management
  - 10.1. Berthing facilities inside ports/harbours
  - 10.2. Crew allotment
  - 10.3. Planning fishing voyages
  - 10.4. Establishment of shore facilities
  - 10.5. Catch handling
11. Field studies :
  - 11.1. Inspection of indigenous fishing crafts, their construction and methods of operation
  - 11.2. Visit to a well organised boat-yard to familiarise with the boat design drawings, sections, mould lofting etc.
  - 11.3. Watching the different stages and progress in the construction of fishing boats

(Contd. on page 12)

# IMPROVED TYPES OF CATAMARANS AND BEACHCRAFT

The primitive catamarans, a crude but robust and firm assemblage of a few logs, are the most extensively operated fishing craft on India's eastern coastline. As many as 50,000 catamarans fish in the Bay of Bengal from Puri in Orissa and Kanyakumari in Tamil Nadu.

In Tamil Nadu alone, numbering 33,000, this little fishing craft accounts for half of the State's marine fish production. Over two thirds of sea fish in Andhra Pradesh are captured with catamarans.

The sturdily built catamarans can swiftly move across the surf and can be hauled ashore with less effort. This low-cost craft is unsinkable and calls for minimum maintenance. Because of these dominant virtues it rules amongst the east coast fishermen for centuries, as the most handy and popular fishing craft.

The low mobility and poor carrying capacity are however the major complaints frequently quoted against the traditional catamarans.

This Bay of Bengal Programme of the Food and Agriculture Organisation Madras,

which is in existence from early 1979 has taken up this aspect and commissioned activities on the improvement of catamarans and in designing a suitable low cost beachlanding mechanised boats for small-scale fishermen.

Under its catamaran improvement plan, with a view to increasing the production and profitability of catamarans several experiments are being conducted according to Mr. L. O. Engvall, Director of Bay of Bengal Programme. To arrest the physical and physiological decay of the logs and to increase their working life, special copper-chrome-arsenic compounds and creosote were impregnated in the wood, Mr. Engvall said. New inexpensive but strong timber were also being tried for catamarans.

The heavy surf conditions that prevail in India's east coast with six-foot high waves breaking regularly right on the beach have rendered it difficult for any small craft except the sturdy catamarans to operate in this area, said an expert in fishing crafts

Beachcraft built abroad were operated in safe beaches. But they could be useful under the rough sea conditions of the east

coast only when fitted with expensive mechanised equipment—beyond the means of large number of poor fishermen. They were thus unsuited for Indian conditions, he said.

To solve this problem the Bay of Bengal Programme has designed four types of intermediate beachcraft of higher carrying capacity incorporating the positive features of the traditional craft such as its operational safety and surf riding capacity.

One of them uses buoyant polystyrene 'logs' enclosed in a boatshaped wooden framework, another is a twin-hull craft, and the other two are two decked single-hull boats of different designs.

Mr. Oyvand Gulbrandsen of Norway, a leading fishcraft specialist, has designed the four prototypes taking into full consideration the rough condition of Indian seas found successful on surf testing these power-cum sail boats would be an ideal substitute for catamarans, said Mr Engvall.

These 7-metre long, beach landing craft built at the Madras boatyards, would undergo rigorous surf tests by an Australian expert during May, Mr. Engvall said.

(Source: HINDU)



# WORKSHOP ON RESERVOIR FISHERIES

Co-sponsored by the Indian National Science Academy, New Delhi and the Indian Fisheries Association, Bombay, the Central Institute of Fisheries Education, Bombay (ICAR) organised and conducted a Workshop on Reservoir Fisheries for Rural Development at Bombay during April 8-9, 1980.

The Workshop was inaugurated by Dr. O. P. Gautam, Director General, ICAR and presided over by Shri S. P. Mukherjee IAS, Additional Secretary, Ministry of Agriculture & Co-operation, Govt. of India. Dr. S. N. Dwivedi, Director CIFE, Bombay, while welcoming the gathering, reiterated that reservoir fisheries for rural development requires new policies and modern technologies. Dr. C. V. Kulkarni,

President, Indian Fisheries Association, Bombay spoke on "Mahseer", the mighty game fish for Indian Reservoirs.

More than sixty scientific papers were presented and discussed at the Workshop. About 100 Scientists from all over the country and the Directors of Fisheries & Fisheries Development Officers from the Inland States attended the workshop and actively participated in the discussions.

From CIFT, the following papers were presented:-

1. Recent advances in reservoir fishing - Development of Craft & Gear - G. K. Kuriyan
2. Fishing crafts for Inland

Reservoirs - R. Balasubramanyam

3. Efficient fishing gear in Hirakud Reservoir - V. C. George
4. Gill net fishing in Indian Reservoirs - A. A. Khan, V. C. George & M. D. Varghese
5. Scope of trawl fishing in Indian Reservoirs - V. C. George, Percy Dawson, A. A. Khan & M. D. Varghese
6. Control of predatory fishes from Reservoirs - M. D. Varghese, R. S. Manohara Doss, A. A. Khan & V. C. George
7. Netting materials for Inland fishing gear - S. Gopalan Nayar & K. Radhalakshmi

## Proceedings of the Workshop on Reservoir Fisheries for Rural Development; Special Number of India Today & Tomorrow Vol. 8, No. 4, 1980

The special number is scheduled to be published shortly. Besides the proceedings, scientific/technical features on the subject along with pictures, statistics etc. are also being included in this issue. Those who are interested in obtaining copies may please register their names at the C.I.F.E. or with the publisher direct. Price per copy is Rs 10/-.

India Today & Tomorrow is a journal devoted to the subject of industrial and rural development, international trade & commerce. The journal is being published every quarter since April 1968. Annual subscription is Rs. 35/-, single copy Rs. 10/-

Shipping & Marine Industrial Journal is being published since October, 1972 and is devoted to Shipping & Ship-

building, Offshore and Under-water activities, Fisheries, Ports and Oceanography. Annual subscription, Rs. 35/-, single copy, Rs. 10/-.

Shri V. J. JOSEPH,  
Editor & Publisher,  
3 Radhe Nivas, 36th Road,  
Bandra,  
BOMBAY - 400050.  
TEL: 547281/273187

# RESERVOIR FISHERIES

In India, the reservoirs have an area of about 3 million hectares and produce 20,000 tonnes of fish annually. This forms a little less than 3 percent of the total inland fish production of the country. Current average annual fish production per hectare is 6-7 kg. which could be raised many folds by adopting proper development and management policies. National Commission on Agriculture has suggested an annual fish production of 40 kg. per hectare for all reservoirs which can be achieved by use of existing technologies and proper management. At the rate of 40 kg. per hectare about 1.2 million tonnes of fish can be produced which if sold at Rs. 5/- per kg. will yield Rs. 60 crores annually.

This will provide a royalty of Rs. 24 crores to State Governments even when they charge the royalty on fishing at the rate of Rs. 2/-per kg. only. Apart from State Governments, the fishermen will get an income of Rs. 36 crores. At a subsistence level of Rs. 5,000/-per fisherman per year this will provide employment to 72,000 fishermen. Fish handling, transport and marketing from production to market centres cost around Rs. 5/-kg. and this gives an additional turn over of Rs 60 crores. This will also provide more jobs to landless labour and fisherwomen.

Reservoirs extending over 2,000 ha. can be considered as large while those with an

extent between 501 to 2000 ha. are medium. Small reservoirs are below 500 ha. in area. Though increase in fish production has been obtained in different reservoirs it is observed that the increased fish production in small reservoirs is spectacular eg. Sathanur reservoir in Tamil Nadu and Keethan reservoir in Uttar Pradesh.

Success of improvement of fish production from reservoirs depend mainly on availability of quality fish seed, management of reservoirs on scientific techniques, exploitation with appropriate craft and gear, providing quick transport facilities like ice and cold storage, organisation of co-operatives etc.

(Continued from page 9)

- 11.3.1. Mechanised wooden fishing boats
- 11.3.2 Steel trawlers
- 11.3.3 Aluminium boats
- 11.3.4 FRP boats
- 11.3.5 Ferro-Cement boats
- 11.4 Watching of the hauling and launching of fishing boats-Slipway management
- 11.5. To undertake fishing voyages on board

trawlers, purse-seiners, gill netters, liners and potters and closely watch the duties and performance of such types of boats.

- 11.6. Visit to a fishing harbour and closely observe the fishing fleet and its management including catch handling

- 11.7. Examine all construction materials at appropriate places and carefully note

their condition before their actual use and after their prolonged use in a marine environment

- 11.8. Study in detail a boat-yard management, its different sections, machineries, men and tools

- 11.9. Exercise on costing/evaluation of fishing boats



## 12. SUGGESTED READING MATERIALS

### GENERAL

12.1. The origin and ethnological significance of Indian Boat Designs by James Hornell

12.2. FAO/TA Report No.1 to the Government of India on Fishing Boats by Paul B. Ziener and K. Rasmussen (FAO/56/10/7991)

12.3. FAO/T Report No. 2, 3&4 to the Government of India on Fishing Boats by Peter Gurtner, FAO

12.4. Fishing Boats of the World by FAO/UN No. 1; 2 & 3

### NAVAL ARCHITECTURE

12.4. Theory of Naval Architecture by Robb

12.5. Modern Naval Architecture by Muckle

12.6. Basic Naval Architecture by Barnaby

12.7. Naval Architecture and ship builders' pocket book by Wollard (Lloyds)

12.8. Naval Architecture of small crafts by Philips Birt

### BOAT CONSTRUCTION

12.9. Fishing Boats by Kennedy Brown

12.10. Standard specification for the construction of wooden fishing vessels over all length 30'-90' by White Fish Authority U. K.

12.11. Rules and regulations for the construction and classification of inland water-ways vessels by Lloyds Register of shipping U. K.

12.12. Fishing boat designs : 1- Flat bottom boats- F. A. O. Tech. Paper No. 117

12.13. Fishing boat designs : 2-V-bottom boats-F. A. O. Tech. Paper No. 134

12.14. Simple boat building by Prout

12.15. Amateur boat building by Crosby

12.16. Boat building simplified by Ashcraft

12.17. Twentythree boats you can build by Popular Mechanics Magazine

12.18. Small boat construction by Stewart R. M.

12.19. Small sea-going craft for inland navigation by Rhoads, A.

12.20. Boat building by Chapelle (Howard)

12.21. Know your own boat by Walton

12.22. Complete amateur boat building by Michael Verney

12.23. Building a sawn from fishing boat - F A O Fisheries Tech. Paper No. 96 by John. F. Fyson

12.24. Boat building guide Vol. 1&2 by Swinfield

12.25. Fishing vessel construction materials, Industrial Development Service, Department of Fisheries of Canada, Ottawa.

### TIMBER TECHNOLOGY

12.26. Indian woods - Wood seasoning and wood preservation - Publications from the Forest Research Institute, Dehra Dun, U. P.

12.27. Wood - A manual for its use in wooden vessels-Bureau of ships, Navy Department, Washington D. C., U. S. A.

12.28. Text Book of Wood Technology Vol. 1&11 by Brown, H. P.

12.29. Decay of wood in boats by Carlhartley and Curtis.

### SHIP BUILDING STEEL AND ALLIED MATERIALS

12.30. Lloyd's specification and classification

12.31. Indian Standards Institute's specification

12.32. Strength of Materials  
(number of publications  
available)

12.33. Marine Aluminium app-  
lications by C. Leveau,  
Kaiser Aluminium &  
Chemical Corporation  
Oakland, California

12.34. Aluminium boats -  
Kaiser Aluminium &  
Chemical Corporation

#### FIBRE GLASS REINFORCED PLASTICS (F. R. P./G. R. P.,

12.35. Glass fibre reinforced  
plastic boat building  
No. 43 by Mc Innes &  
Hobbs, Lloyd's Register  
of shipping, U. K.,

12.36. Fibreglass boats, fitting  
out, maintenance and  
repair by Hugo du  
plessis, Alard Coles,  
London

12.37. How to build 15' fibre.  
glass boats by Charles  
Bell

12.38. Lloyd's specification for  
the application of FRP  
in boat

#### FERRO CEMENT

12.39. Ferrocement with spa-  
cial reference to marine  
applications by Charles  
Darwin Canby

12.40. Report of the Seminar  
on the design and  
construction of Ferroce-  
ment Fishing Vessels,  
Wellington, Newzea-

land, 9-18, October  
1972 -FAO Report No.  
131 F.IV/R 131

12.41. Construction of a 16  
Metre Ferrocement  
Fishing Boat by J Fyson  
of F. A. O.

12.42. Ferrocement constru-  
ction of fishing vessels  
by J. FYSON, FAO/UN  
DP/TA, Bangkok, Thai-  
land

12.43. Ship hulls made of  
reinforced concrete-  
design, strength and  
construction techno-  
logy - Scientific Docu-  
mentation Division  
(205), Department of  
Navy, Washington,  
D. C.

12.44. Ferrocement: Applica-  
tions in developing  
countries-National Aca-  
demy of Sciences,  
Washington, D.C., USA

12.45. F. A. O. Investigates  
Ferrocement Fishing  
Craft Edited by John  
Fyson, Fishing News  
(Books) Ltd., England.

#### MISCELLANEOUS

12.46. Marine fouling and its  
prevention - Contribu-  
tion No. 580, Woods-  
Hole Oceanographic  
Institution, U. S. A.

12.47. Biodeterioration of  
materials by Harry Wal-  
ters and J. J. Elphick

12.48. The corrosion Hand-  
Book by Herbert H  
Uhlig

12.49. First course in Materials  
science by A Raghavan

12.50. Materials in Industry  
by Patton

#### 13. Contact Institutes and Organisation

13.1. Central Institute of  
Fisheries Technology,  
Cochin. P. C. 682029

13.2. Central Institute of  
Fisheries Education,  
Versova, Bombay. P.  
C. 400061

13.3. Central Institute of  
Fisheries Nautical and  
Engineering Training,  
Cochin P. C. 682016

13.4. Indian Institute of  
Technology, Faculty of  
Naval Architecture,  
Kharagpur, West Bengal

13.5. Indian Institute of  
Technology, Madras.  
P. C. 600036

13.6. Naval Chemical and  
Metallurgical Labora-  
tory, Naval Dockyard,  
Bombay

13.7. Indian Standards Insti-  
tution, Manak Bhavan  
New Delhi. P. C.  
110001



# GLEANINGS FROM OTHER JOURNALS

## Hull Clearing System with Polypropylene Bristles

### Complete Hull Cleaning Service

Imagine a hydraulic car wash working upside down in the sea and you will understand the principle behind "Seascrub", a new machine for cleaning boat hulls.

According to the makers, Hyd Marine Developments of Farnborough, Hampshire (US), the machine can be used to clean any length of boat including those with deep finned keels using either fresh or salt water.

Tests show that the machine's 12 inch polypropylene bristles defoul the bottoms of boats effectively. The sensing system which controls the brush position against the boat is completely controlled by an hydraulic feed back system. No electronic sensors or servo arrangements are involved.

Mr. Christopher Good, Managing Director of Hyd Marine thinks it will be possible to offer a complete hull cleaning service for about one pound a scrubbed foot - at present, the procedure is to book your boat into a marina where it

is lifted out of the water and cleaned by marina staff. The price can be as much as 2.50 pounds a scrubbed foot.

(Financial Times)

### Industrial Flocculent from Prawn Waste: Process Developed

The Central Institute of Fisheries Technology has developed a process to manufacture industrial flocculent from prawn shells.

Mr. G. K. Kuriyan, Director of the institute, told a press conference at Calicut that the product chitosan which was de-acetylated chitin could be utilised for treatment of sewage, and industrial effluents. It could even remove mercury and other heavy metals from effluents. Chitin along with other antibiotics is used in the pharmaceutical industry also

The institute has set up a one tonne pilot plant at Cochin, which processes one tonne of prawn waste within 24 hours. Three to four percent of the weight of raw material would be the finished product.

According to Mr. Kuriyan prawn wastes in the country would come to about 60,000 tonnes a year. Its processing which was very easy too, could save a lot of foreign exchange which was now being spent on importing other types of similar industrial flocculent. While the product from prawn waste would cost about Rs 35 to 40 a Kg. the imported products cost Rs. 200 or so a kg.

There were many enquiries from abroad for the product though not many had come forward yet to take up its manufacture in the country except one very small unit.

Mr. Kuriyan said the institute had been working for some time on the problem of utilisation of prawn shell waste which was at present discarded in processing factories. The formula for balanced poultry feed, using prawn shell powder, fish meal, rice bran, wheat bran and molasses had been evolved.

The process for preparation of soluble fertilizer by mixing prawn shell waste and fish waste having a ratio as recommended for arecanut, and ginger had also been developed. During

(Continued on page 18)

# LET'S TALK IT OVER

## M/s United Carbon India Ltd., Bombay

What is the annual production of Fish meal in the country? Is there any fish meal manufacturer in India who uses anti-oxidants in the manufacture of fish meal for longer life? Would you please furnish a list of firms undertaking manufacture of fish meal?

CIFT: The annual production of fish meal in the country is estimated at 5000 tons.

At Present, to our knowledge, no firm in India is using anti-oxidants in the manufacture of fish meal. By use of anti-oxidants to the fish meal immediately after manufacture, the meal is 'stabilized'. The amount of anti-oxidants required for avoiding under heating depends upon the degree of activity of the oil (lipid unsaturation) and varies from species to species as indicated below.

South African pilchard

Meal (IV.180) : 400 ppm ethoxyquin

Herring meal (IV.120) : 700 ppm BHA

Anchocta meal (IV.190) : 400-750 ppm ethoxyquin

The anti-oxidant is added immediately after drying. It is added to the meal in the screw conveyor leading from the drier to the mill so that mixing can take place enroute.

In some factories, the anti-oxidant is mixed with a constant amount of stick water concentrate, which solution is then added to the press cake in the screw conveyor and then to the drier.

A list of firms undertaking manufacture of fish meal is furnished:

## Manufacturers of fish meal.

1. M/s Fish meal and Oil Plant  
Kerala Fisheries Corporation  
Azhikode, Trichur District, Kerala.
2. M/s Mukka Oil & Food Industries.  
Karnataka Bank Building  
Kodiyal Bail  
Manglore (Karnataka)  
575003
3. M/s Sea Farm Fertilizers  
4/18 A Pullupalam  
P. B. No. 56  
Cochin-1
4. M/s Babcock Perundurai Poultry Farm  
Kaunnathur Road, Perundurai  
Erode R. M. S., Tamil Nadu - 638052
5. M/s Agro-Marine Products Corporation  
Muthupuram Agraharam

Velipatanam (P. O)  
Ramanathapuram, Tamil Nadu

6. M/s Patel Grinding Industries  
P. B No. 6356, Sewri.  
Cross Road  
Near Sewri Railway Station  
Sewri, Bombay-400015

## M/s Cellulose Products of India Ltd., Madurai

We would like to know whether the moisture metre developed in CIFT can be used for measuring moisture in air-dried seaweeds. CIFT: The moisture meter developed in CIFT is primarily designed for measurements in wood dried fishes and also in food grains. In principle, it should be suitable for air-dried weeds also.

The sensor should be slightly modified for measurements with dried seaweeds. Every time the material will have to be taken in the pot like sensor and pressed with a standard weight to bring it to a uniform nature, unlike piercing the probe in the case of Wood and dried fishes. Further, a separate calibration has to be made in the case of seaweeds as its properties are different from wood and other materials.



## K. A. SADANANDAN



Shri K. A. Sadanandan, Scientist S-2, is a senior scientist of the Gear Division of CIFT.

Born on March 23 1935 at Moothakunnam in Ernakulam District, he took his Msc. Degree in Zoology in 1958 from Agra University. He joined CIFT the same year.

Shri Sadanandan is one of the few scientists who were privileged to get theoretical and practical guidance and training on problems connected with the fishing gear technology and shrimps trawling from the FAO Gear Technologist, Dr. Miya Moto for five years from 1958 to 1963.

Evolving new designs of nets suitable to Indian Condi-

tions and their introduction to various parts of the country for better catch and easier handling is the field of his specialization. The new designs of Bottom Set Gill Net evolved by him for catching lobsters along the south west and south east coasts of India is found to be three to four times more efficient and easier in handling than the existing ones. He has designed and introduced a nylon gill net of 75 mm mesh size for catching commercially significant size groups of Seer fish. For catching tiger prawns along the ground of zuary Estuary of Goa he has designed another polyamide gill net.

Among the trawl nets designed and developed by Shri Sadanandan, a trawl gear combination suitable for operation from small motorised boats along the east coast of India and the dual purpose trawl net and otter board suitable for operations for demersal and column fishes from small mechanised boats along the west coast of India deserve special mention.

Similarly, the designs of purse seines evolved by him for catching mackerel are found to be cheaper in construction, easier in handling and more efficient than the traditional purse seines.

He has associated with the extensive studies conducted by CIFT on troll lines and selectivity of artificial lures for catching predatory fishes.

Under an F A O Group Fellowship Study Tour, Shri Sadanandan Visited Soviet Russia in 1967.

To his credit there are eleven scientific papers published in various journals. He has also guided the publication of several Research papers.

# WHAT THEY HAVE TO SAY ABOUT CIFT

- Nice to see -a dream come true -

G. M. GERHARDSEN,  
Borgen, Norway.

- I am very impressed of your work -

A. BRINGSVOR,  
Borgen, Norway

- I am very impressed of the Institute's capacity, and very much appreciate the discussions held with such a Knowledgeable staff -

I. BUORKLUND, FAO, ROME.

- I am very informed with your developments in Fisheries and hope to take back home something we have gathered in a short time -

K. S. AALGE, Minister of  
Agriculture, Republic of  
Seychelles.

(Continued from page 15)

the production of chitosan, another by-product that would be available was protein extract, he said.

The method developed by the Institute for the preparation of fish protein concentrate containing 80 per cent protein from trash fish had been adjudged good by a few laboratories, including the Bureau of Commercial Fisheries of the U. S. and the Institute of Catering Technology, Bombay, Mr. Kuriyan said.

Bacteriological peptone was yet another product which had prepared from miscellaneous trash fish and the product was quite comparable to the imported peptone.

The Institute, according to the Director had developed processes for the preparation of a variety of speciality products like fish flakes and fish soup powder dried mussel meat, smoked and dried mussel meat and mussel pickles, were some other recent products developed by the Institute.

## Tissue Culture Method

In collaboration with the Forst Development Corporation of Maharashtra Ltd, National Chemical Laboratory, Pune, undertook studies to develop a tissue culture method for multiplying elite 100-year-old teak trees. A method was standardized by which more than 500 plants can be produced from a single terminal bud in a year, or 2500 in two years. This is the first report on the clonal multiplication of a mature tree of a known genotype. Field trials on about 200 plants developed by culture are being conducted by the Corporation at four different locations.

CSIR News

## President's assent to TN fisheries bill

The president has given his assent to the Indian Fisheries (Tamil Nadu Amendment) Bill, 1979.

The Bill seeks to achieve the State Government monopolise chanks and chank Fisheries in the State and to prohibit any persons from possession,

selling, moving, storing or transporting chanks or carrying on any business, industry or other activity in respect of chanks and chank Fisheries in Tamil Nadu except under permits and licences to be granted by authorised office.

Indian Express.

## Assam's Plan to Develop Fisheries

Fish production in Assam can be quadrupled in the next few years, according to Mr. V. Ramachandran, Adviser (Fisheries), North - Eastern Council,

With its ideal agro-climatic conditions and the growing demand for fish for an expanding urban population, the State could embark upon a massive programme of fisheries development, Mr. Ramachandran said.

He pointed out that the mighty Brahmaputra and the Barak, with over half a dozen other major rivers and scores of tributaries, remained under-exploited. Besides, there were ponds and vast swamps which were yet to be fully exploited.

Hindu



## CIFT is at your Service

*It transfers Fishery Technology by way of:*

- ◆ Demonstrations of Fishing and Fish Processing techniques evolved by it
- ◆ Answering Technical queries
- ◆ Supplying project reports and design drawings
- ◆ Training courses of fishing and fish processing

*Please contact:*

Director,  
C. I. F. T.,  
Matsyapuri P. O.,  
Cochin - 682 029





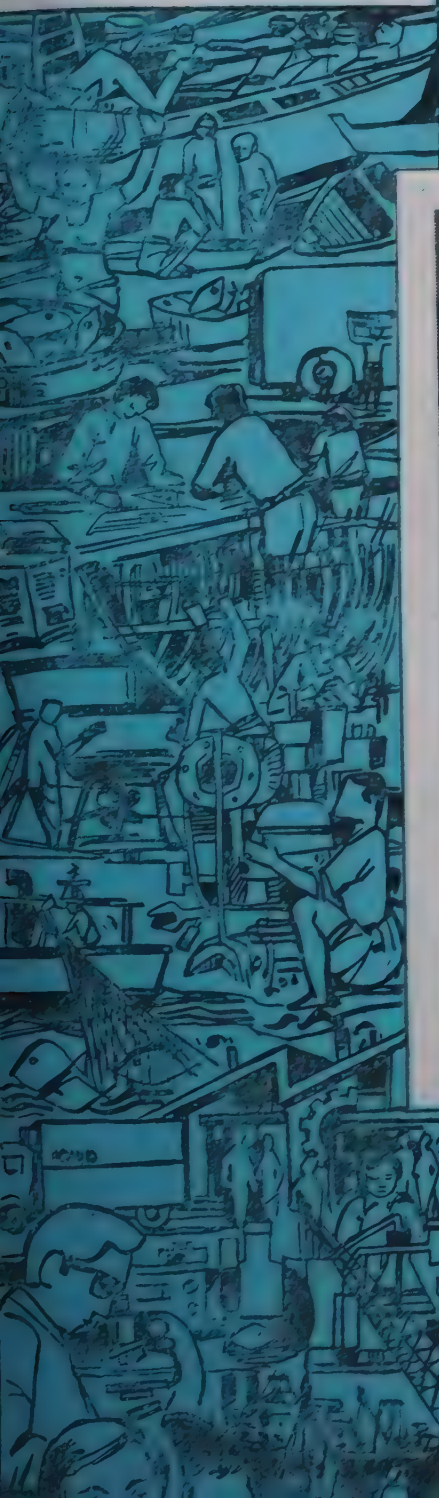


# Fish Technology newsletter

Vol. II

No. 9

JULY-SEPTEMBER 1980



CIFT Gear Scientist explaining a design drawing on trawl nets to the trainees under Lab-to-Land programme at Badagara (Report on page 5)

**CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY**  
MATSYAPURI P. O.

COCHIN - 682 029

## CONTENTS

	Page
1. Foreword	3
2. G. K. Kuriyan Passes away	4
3. Lab-to-Land Programme of CIFT	5
4. ICAR Regional Committee No. 8	6
5. Improved Fishing Gear	7
6. Members of Parliament Visit CIFT	8
7. Steel Trawlers from Goa Shipyard	9
8. CIFT Appointments, Promotions, Transfers.	10
9. Let's talk it over	11
10. Geanings from other Journals	12
11. F. R. P. Canoe and Boat for Small Scale Fisheries	13
12. Meet our Scientists	14



# Foreword

## EDITORIAL COMMITTEE

Shri R. BALASUBRAMANYAN  
*Chairman*

Shri K. C. PURUSHOTHAMAN  
*Secretary*

Shri P. MADHAVAN  
*Member*

Dr. P. N. KAUL  
*Member*

Fish Technology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Photography Shri K. BHASKARAN

Art Shri G. MOHANAN

Editorial Committee.

Abbreviation: Fishtech News

## G. K. KURIYAN PASSES AWAY



Shri George K. Kuriyan, Director, Central Institute of Fisheries Technology, Cochin, died of heart attack at Delhi on August 4, 1980.

Shri Kuriyan (57), a well known Fisheries Technologist, had made immense contribution of providing improved designs of fishing crafts and gear to suit our waters.

As Assistant Director (Gear) it was Shri Kuriyan who took the initiative in establishing CIFT at Cochin in 1957. The craft and gear division of CIFT, the nucleus of

present CIFT, was organised by Shri Kuriyan. This Division's contributions to mechanisation in the field of fishing is immense. He was instrumental in developing and introducing new designs of fishing crafts of various sizes and new concepts of gear like long wing and bulged belly trawls. These are now known as standard CIFT designs.

Shri Kuriyan was the Director of CIFT since September 1974. Prior to this he had served as Senior Fishery Scientist cum-Head of the Division (Craft & Gear)



LAB - TO - LAND PROGRAMME OF CIFT - 11

One of the highlights of the Golden Jubilee celebrations of the Indian Council of Agricultural Research observed last year was a country-wide programme of transfer of technology known as the Lab - to - Land programme to which CIFT is also contributing in a humble way. In the previous issues we published reports on such programme held at Mangalore, Bombay, Kumarakom, Calicut, Kumbalam, Vaikom, Veraval, Madras, Cochin, Kakinada and Elathur. In this issue we present a report on programmes taken up at Badagara, Kerala.

# Training in Trawl Gear Fabrication

With the mechanisation in fishing, trawl nets are in ever growing demand. At present, trawl gear fabrication is mainly done by those engaged in mechanised fishing only. This requires a certain amount of skill in reading the design drawing, shaping of different parts, joining parts and finally, the assembly of the different sections to a full sized trawl net.

Local fishermen are conversant with the fabrication of traditional gear like gill nets, boat seines etc. where there may not be much of engineering principles involved. If a comprehensive idea and practical training is given to such people in the modern trawl gear fabrication, that will enable

them to increase their income and thereby improve their living conditions. With this in view, the Central Institute of Fisheries Technology organised a short term training programme of one month duration in July 1980 at the coastal village, Kuriyadi in Badagara.

and Senior Research Officer. Even before joining CIFT he had been responsible for introducing mechanisation programme in the Department of Fisheries of the erstwhile composite Madras state.

He was associated with a number of organisations like the Indian Standard Institution, Society of Fisheries Technologists etc. in various capacities.

He is survived by his wife and parents.



Shri K. P. Unnikrishnan, Member of Parliament inaugurates the training programme.

The fourth ICAR Regional Committee No. 8 was held on August 21, 1980 at Kerala Agricultural University, Vellanikkara.

This was one of the eight Regional Committees constituted by ICAR for the following purposes.

(1) to review the status of agricultural research and education in the region, and (2) to analyse, discuss in depth and make recommendations on

the location of specific problems of agriculture, animal husbandry, fisheries and forestry peculiar to Karnataka, Tamilnadu, Kerala, Union Territories of Pondicherry and Lakshadweep Islands.

Tamil Nadu Agriculture Minister, Shri K. Kalimuthu, Pondicherry Agriculture Minister, Shri V. M. C. Sivakumar, Karnataka Agriculture Minister, Shri K. Yenappa, ICAR Director General, Dr. O. P. Gautam, Vice Chancellors of Agricultural Uni-

versities, Directors of ICA Institutes, Governing Body Members and State representatives attended the meeting.

Among other things, the committee recommended to formulate a unified policy on agricultural education.

CIFT Director is the secretary of Regional Committee No. 8.

Eighty nine fisherwomen of that locality attended the training programme. They could acquaint themselves with the various aspects of trawl gear fabrication.

In addition to this they were given an over all idea of different sizes and types of trawl nets. They will be able to cater to the needs of the evergrowing demand of trawl nets and get gainful employment.

The training programme was inaugurated by Shri K. P. Unnikrishnan, Member of Parliament, on July 12, 1980 at Government Fisheries L. P. School, Kuriyadi. Shri Unnikrishnan asked the fishermen community to fully utilize the benefits of the research achievements in fishery technology for the betterment of their living conditions.



The trainees actively participating in the fabrication of a modern trawl gear



# IMPROVED FISHING GEAR

## Trawl Nets

As a result of constant and continuous studies so far made at the CIFT on marine fishing gear and methods, better returns from the inshore fishing grounds in the form of increased fin-fish catch have been recorded. The new gear design concepts are (1) Bulged belly trawl (2) Six-seam trawl (3) High opening trawl, (4) large mesh trawl, (5) Parallel twin-body trawl, (6) Three panel double trawl and (7) Equal panel mid-water trawl.

## Purse Seine Net

A small purse-seine net of 260 M x 28 M was designed, fabricated and experimental fishing conducted from a 9.75 M OAL mechanized vessel with encouraging results.

The new design of net can hold about 3 to 4 tons of fish. The weight of the gear with all accessories comes to only 550 to 600 kg. and whose cost works out to be Rs. 75,000 to 80,000/-. This gear can be operated from an ordinary shrimper

trawler without any major change in the existing deck arrangements during the peak mackerel and sardine seasons.

## Gill Nets

Modified gill nets made of Nylon 210 D/2/3 in 50 mm and 60 mm bar meshes and Nylon 210 D/3/3 in 70 mm bar meshes landed good quality fish like Hilsa, Pomfret, Seer, Silverbar fish and the like off Veraval (Gujarat) coast. Coloured gill nets exhibited better catching efficiency.

Kozhikode District Collector, Shri K. M. Balakrishnan presided over the function. Badagara Municipal Chairman, Shri K. Reghunath, Chorode Panchayat President, Shri M. Dasan and Chombola Block Development Officer, Shri C. Ebrahim, also spoke on the occasion.

CIFT Director, Shri G. K. Kuriyan, welcomed the gathering and Shri T. S. Unnikrishnan Nair, Scientist in-charge, Calicut Research Centre of C. I. F. T. expressed the vote of thanks.



Shri R. Balasubramanian, Head of Division, Craft & Gear, CIFT, distributes proficiency certificates

# MEMBERS OF PARLIAMENT VISIT CIFT

A delegation of Members of Parliament from different states visited CIFT on September 1, 1980. This was part of a study tour on various Agricultural Research Institutions and projects located in south India.

Shri M. R. Nair, Director of CIFT, received the Members of Parliament and briefed them on various research activities of CIFT. While explaining the accomplishments of the fisheries scientists of the Institute, Shri Nair said the new technologies developed at CIFT have helped the fish farmers of the country in general and Kerala and other neighbouring states in particular.

Small and marginal fish farmers have been immensely benefited by the new technologies developed at the Institute.



Members of Parliament with CIFT Director and staff

Expressing their appreciation of the work being done at the Institute, the visiting Members

of Parliament said our scientists were among the best in the world and they were convinced that with the zeal and dedication with which our scientists are working, despite several odds against them, no agricultural problem in particular should remain unsolved.

The Parliamentary delegation, however, felt the results of these good works were not reaching the fishermen community as speedily and effectively as it should have been.

Members of Parliament which included Shri Mukund Mandal, Shri Ras Behari, Shri Hukum Deo Narain, Shri George Joseph Mundakal, Shri Chatturbuj and Shri Xavier Arrakkal emphasised the urgent need for developing technologies best suited to the small and marginal fish farmers.



ICAR Director General Dr. O. P. Gautam, during his visit to CIFT





# STEEL TRAWLERS FROM GOA SHIPYARD

Goa Shipyard is now in a position to offer various types of fishing vessels from 15 to 45 metres in length, with as much sophistication in terms of machinery and equipment as desired by the customers.

Construction of eight to twelve trawlers can be undertaken and delivered annually. Goa Shipyard already has designs and drawings for undertaking the construction of trawlers / fishing vessels for following over-all lengths—17.5 M trawlers; 18.6 M fishing vessels; 21.6 M fishing vessels; 23 M trawlers; 26 M trawlers; 22 M fishing vessels; 33.3 M fishing vessels and 36.5 M fishing vessels.



F. R. P. Canoe with outboard engine

Moreover, in view of the Norwegian Aid Programme, Goa Shipyard enjoys the facilities of

obtaining the necessary foreign design and technical assistance.



F. R. P. Canoe with sail

In view of the Union Government's recent decision to extend a flat rate of cash subsidy of 33 per cent to the trawler industry and a 10 per cent price preference for indigenous trawler units, Goa Shipyard is eager to offer her expertise to potential customers in terms of ship designs, quality-workmanship, reliable performance and firm delivery schedules.



F. R. P. Boat with in-board engine



F. R. P. Boat with out-board engine

## CIFT Appointments, Promotions, Transfers.

### Appointments

1. Shri Chaitanya Kisan-Tech-  
nician-1 (Jr. Lab. Asst) at  
Burla Research Centre.
2. Shri V. P. Reghunathan-  
Technician-1 (Boilerman)  
at Headquarters.
3. Shri Mohanlal Mangalji  
Damodara - Junior Clerk at  
Veraval Research Centre.
4. Shri O. K. Xavier - Driver  
(Technician-1) at Bombay  
Research Centre.
5. Shri K. T. Abubacker-Accou-  
nts Officer at Headquarters.
6. Shri Kana Jina Chandra-  
S. S. G. I. at Veraval Re-  
search Centre.

### Promotions

1. Smt. T. N. Ambujakshi  
Amma - Assistant-Superin-  
dendent at Headquarters.
2. Smt. Nafeesa Ali, Senior  
Clerk - Assistant at Head-  
quarters.
3. Shri Y. W. Mhadgut, Junior  
Clerk-Senior Clerk at Bom-  
bay Research Centre.

### Transfers

1. Shri M. P. Chandrasekharan,  
Supdt-transferred to CMFRI,  
Cochin, on appointment as  
Asst Accounts Officer.
2. Shri P. K. Thomas transferred  
from Central Arid Zone Re-  
search Institute Jodhpur  
joined Headquarters as  
Junior Clerk.

### Retirement

Shri P. V. Channy, Techni-  
cian - 2 Voluntarily from  
Service.



# LET'S TALK IT OVER

## The Development Manager (Agl), State Bank of India, Bhubaneswar

We would like to know whether Marine plywood can be used as stiffener between the layers of Fibreglass. Will it in any way weaken the construction of the Trawler's Hull?

CIFT: Hull stiffening is an approved method of construction of FRP Boats. To ensure rigidity and stiffness the hull is to be provided with an efficient system of side and bottom framing in conjunction with longitudinal girders and transverse bulk heads. In boats measuring below 12 meters in length, sufficient stiffening may be provided by the internal assemblies like bulk heads, floor boards, tanks etc. and only an occasional transverse or longitudinal stiffener may be necessary.

As core materials, timber or solid formed plastic, can be used and it should bound firmly to the skin.

The hull of a boat may also be moulded single skin laminate, sandwich construction of thin laminates with a low density core or some com-

binations of these types adhering to rules regarding the thickness of the core material, the weight of the shell laminate and spacing of the stiffening members.

If marine ply-wood has been used in the above principles, no weakening of the entire structure will result.

## The Block Development Officer, Mogalthur, Andhra Pradesh.

Whom we have to approach to get a temperature salinity meter developed by CIFT?

CIFT: The temperature salinity meter developed by CIFT has been commercialised through National Research Development Corporation of India, New Delhi, by M/s Saraff Electro-Oceanic Appliances, Saraff House, Willingdon Island, Cochin-682003, who have been entrusted with the fabrication and supply of the item. You may, therefore, please contact the firm direct for more details.

## The Andhra Pradesh State Agro Industries Corporation Limited, Hyderabad.

We came to know that your Institute has developed a

new nutritive beverage based on fish protein hydrolysates. More details please.

CIFT: Yes, we have developed a process for preparing beverage out of fish hydrolysate. Comminuted low cost fish is hydrolysed and the hydrolysate is mixed with Cocoa, Malt and sugar. The product resembles "Bournvita" or "Ovaltine" and may be used in the same way as the above products are used.

## M/s. United Carbon India Ltd., Bombay.

Why anti-oxidants are not used in the manufacture of Fish Meal in India?

CIFT: We are not in a position to give concrete reasons as to why anti-oxidants like B4 A are not generally used in the manufacture of Fish Meal in India. Probably it might be because, there is really no need for it. There is, however, no objection in using it in fish meals and we would even recommend it. There might also be a few processors who are actually using it in the manufacture of the meal.

# GLEANINGS FROM OTHER JOURNALS

## 7 Big Houses in Deep sea fishing

The Minister of state for Agriculture, Mr. K. V. Swaminathan, informed the Lok Sabha that seven large industrial houses were engaged in deep sea fishing

These include Union Carbide India Limited, India Tobacco Company Limited., E. I. D. Parry India Limited, Britannia Industries Limited, Tata Oil Mills Company Limited, Konkan Fisheries Limited and New India Fisheries Limited.

In reply to a question by Mr. S. M. Krishna, he said Tata Oil Mills had registered the highest export of marine fish among these companies during 1979-80 with a total export of Rs. 553 lakhs.

In reply to another question by Mr. Indrajit Gupta he said six Indian companies had been allowed to charter fishing trawlers from abroad. These were Tata Oil Mills, Golden Hind Shipping, Universal Foods, Kelbex International, Peejay India - Bulgarian Fisheries, and Aqua Marine Products Export.

Although 77 vessels had been chartered, only 16 vessels actually operate at present.

Six multinationals or companies coming under the Monopolies and Restrictive Trade Practices (MRTP) Act are operating in the marine fishing industry.

The Irrigation Minister, Mr. Rao Birendra Singh, told Mr. Devender Singh Garcha and Mr. K. A. Swami that these firms were operating 22 Vessels of a Length of 20 metre and above. The processing capacity permitted to them collectively was 36,267 tonnes a year.

— ECONOMIC TIMES —

## Deep Sea Fishing: Centre's Policy to be Streamlined

The Government proposes to streamline the policy governing the charter of deep-sea fishing vessels, the Minister of state for Agriculture, Mr. R. V. Swaminathan, told the Lok Sabha.

Intervening in the debate on the demands for grants of the Agriculture Ministry, he said the policy would ensure that there was no over-exploitation of coastal fisheries and that no poaching took place under the garb of chartered vessels.

— HINDU —

## Larger Vessels for Fisheries Project

The Minister of state for Agriculture Mr. R. V. Swaminathan, told the Lok Sabha that several proposals were being considered to acquire new and larger vessels for the Exploratory Fisheries Project, Bombay.

Five new vessels have recently been constructed and added to the fleet of the Project with assistance from Denmark, the Netherlands, and Norway under bilateral aid programmes.

One vessel is being constructed in Japan. Three more vessels are under construction with Norwegian aid at the Goa Shipyard. The organisation is being strengthened to undertake extensive survey in the exclusive economic zone of India.

— Times of India —

## Floor price for fish under study

Minister for Revenue and Fisheries, Mr. P. S. Sreenivasan, told the Kerala Assembly that there was a proposal to introduce floor price for certain varieties of fish, if their prices dropped to an un-remunerative level.

Participating in the debate on the demands for grants for his Ministry, the Minister said that in that event the Fisheries Corporation would directly purchase the catch from the fisherman and distribute it to the public through a network of booths which would be set up for the purpose.

— Indian Express —



# F. R. P. Canoe and Boats for Small Scale Fisheries

Of late, low energy fishing like gill netting, drift netting, hand-line and long-line fishing and lobster potting have better cost benefit ratio than the conventional high energy fishing like trawling.

In this context light fishing crafts installed with low horsepower engines in conjunction with sails and that are operable from the sandy coastal beach can be adapted by the traditional fishermen under small-scale fisheries.

A number of Indian firms have now brought out FRP canoes and boats to meet the present demands.

For further details, the following firms may please be contacted.

1. M/s. Irwin's Boat Yard, 23-31-5 Thompson Street, Vishakapatnam - 530001.
2. M/s. Gladstone Lyall & Co. Ltd., Ullal P. O., Mangalore

3. M/s. Maha Mysore Boat Building Enterprises, Hoige Bazaar, Mangalore-1
4. M/s. Aqua Marine Pvt. Ltd., B - 5 Ambattur Industrial Estate, Madras - 600058.
5. M/s. Elite Shipyard (P) Ltd. Match Factory Compound, Veraval - 362265. Gujarat,
6. M/s. Aquaman Polyfibres 72, Victoria Crescent. Egmore, Madras - 600008. (List not exhaustive)

---

## Electrical Device Repels Sharks

An electrical method of repelling sharks in salt water has been invented, in his spare time by Dr. William R. Stowell, a research engineer for the General Electric Co. in Cincinnati. A patent granted him reports that the voltage used will over-stimulate the shark's nervous system but will not disturb most scaled fish or human beings.

Stowell has had a score of prototypes of the equipment made and has conducted successful tests with sharks in tanks operated by research or-

ganisations in Miami and Fort Lauderdale, Fla., and in Aurora, Ohio. He plans to make tests in the Atlantic Ocean off the New Jersey coast within the next few weeks.

A pulsed direct current is used just long enough to allow nerve-cell response in a shark. It is turned on with a frequency near that of the creatures' nervous system (six to 12 cycles per second), and causes convulsion. As the patent explains, a strength of 130 volts has been found effective at a distance of five or six feet from a shark and 50 volts are enough at a distance of two or three feet.

The device is effective against other sealife, including squid and shrimps. The repellent equipment is made in two forms—one small enough for a man to carry and the other mounted on a buoy. The electronic circuitry fits in a small box and an eight pound rechargeable battery is suitable.

The inventor has discussed manufacture of the equipment with several companies. Purchasers would probably include scuba divers, fishermen and owners of pleasure craft.

— THE HNIDU —



## P. APPUKUTTA PANICKER



Shri P. Appukutta Panicker, Scientist-S2, is a scientist in the Gear Division of the Central Institute of Fisheries Technology, Cochin. Born on January 26, 1934, at Nettur, Ernakulam Dist, Kerala, he had his early education from Government High School, Mangayil, Maradu. He had his college education in the Sacred Hearts College, Thevara, affiliated to Madras University and passed the B. Sc. degree in Zoology creditably in 1955. After graduation Shri Panicker continued his Post-graduate studies in Zoology with specialisation in Fish & Fisheries in the Birla College of Science and Commerce, Pillani, Rajasthan University.

After a brief period as Survey Asst. in Fisheries in the Andaman & Nicobar Islands, Shri Panicker joined the Central Institute of Fisheries Technology in 1960, as Research Asst. in the Craft & Gear Wing. On his promotion to Asst. Research Officer (Craft & Gear) in 1964 and subsequently as Research Officer in 1965 by the UPSC he was posted at the newly organised Research Centre at Goa to take up investigations on fishing gear technology. He was solely responsible for the organisation of the Goa unit. Shri Panicker has also served as the Head of Division of Craft & Gear at Veraval Research Centre during 1970-75. Thereafter he was transferred to Headquarters at Cochin in 1975.

Shri Panicker is one of the pioneers in the studies on the selectivity of fishing gear and has evolved suitable mesh sizes and designs to avoid depletion of natural stocks of prawns, hilsa, and pomfret and developed troll lines for pelagic and predatory fishes. He is a specialist in shrimp trawling and has evolved and standardised indi-

genous methods for double rig and twin rig shrimp trawling from medium classes of vessels and also parallel twin trawls for shrimping.

During the last five years he has been mainly engaged in evolving suitable purse seines for small mechanised vessels and country crafts. Shri Panicker is a member of task force for the Lab-to-Land programme of the Institute and has taken active interest and leadership in organising and participating in training programmes for artisanal fishermen in the fabrication of modern fishing gear. Now he has been selected for an advanced post graduate diploma course in fisheries management at Grimsby College of Technology, U.K. under the Colombo Plan for one year. He has served as the member of the Central Advisory Committee on Exploratory Survey on Marine Fisheries of the Government of India. He is one of the founder members of the Society of Fisheries Technologists, India and also a member of its Executive Committee.



## CIFT is at your Service

*It transfers Fishery Technology by way of:*

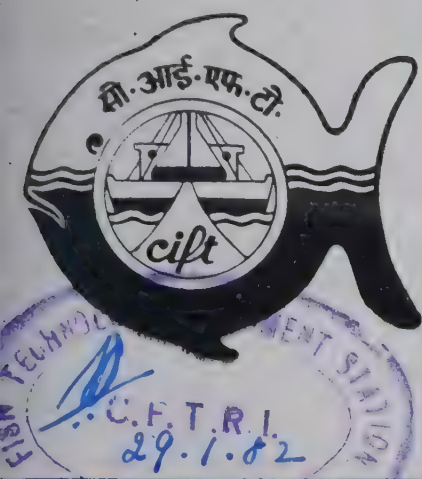
- ◆ Demonstrations of Fishing and Fish Processing techniques evolved by it
- ◆ Answering Technical queries
- ◆ Supplying project reports and design drawings
- ◆ Training courses of fishing and fish processing

*Please contact:*

Director,  
C. I. F. T.,  
Matsyapuri P. O.,  
Cochin - 682 029

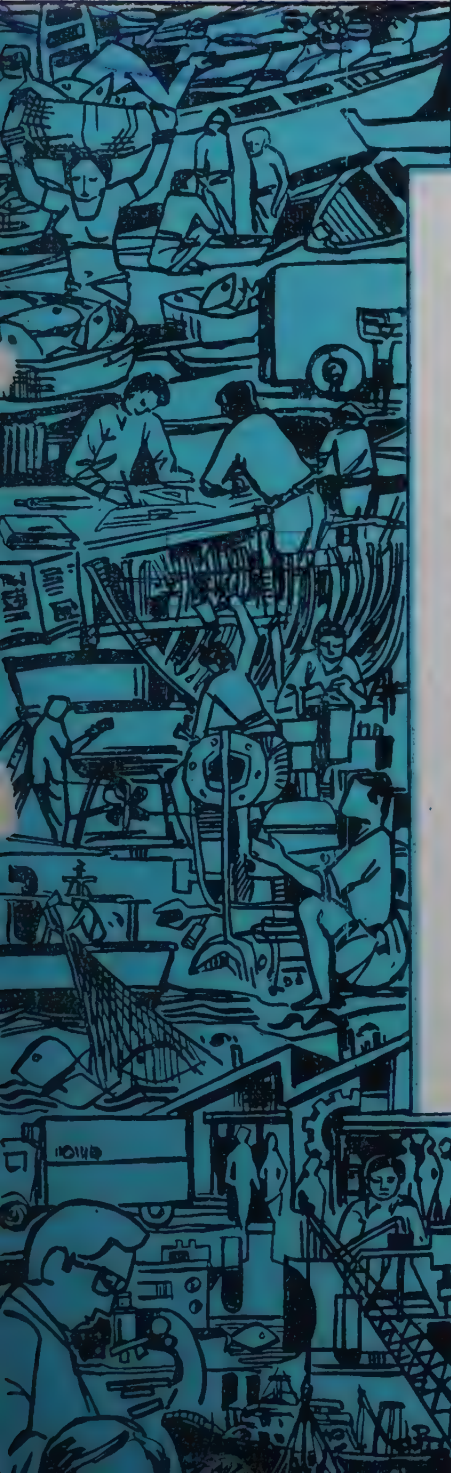






# Fish technology newsletter

Vol. II No. 10 OCTOBER - DECEMBER 1980



A view of the audience of the Seminar on Fisheries Extension held in December, 1980 at CIFT, Cochin (Report on page 4)

**CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY**  
MATSYAPURI P. O. COCHIN - 682 029

## CONTENTS

	Page
1. Foreword	3
2. Seminar on Fisheries Extension	4
3. Lab-to-Land Programme of CIFT - 12	7
4. Modern Traps for Lobster Fishing	9
5. Development of Fisheries in Konkan	10
6. Fishing Boat for Reservoirs: Fishtech No. 10	12
7. FAO Invites CIFT Scientist	12
8. Dr. Panduranga Rao, CIFT Director	13
9. ICAR Tournaments	13
10. Gleanings from other Journals	14
11. CIFT Appointments	15
12. Meet Our Scientists	16





# Foreword

## EDITORIAL COMMITTEE

Shri BALASUBRAMANYAN  
*Chairman*

Shri K C. PURUSHOTHAMAN  
*Secretary*

Shri P. MADHAVAN  
*Member*

Dr. P. N. KAUL  
*Member*

*Photography* Shri K. BASKARAN

*Art* Shri G. MOHANAN

*Abbreviation: Fishtech News*

Fish Technology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Editorial Committee.

# Seminar on Fisheries Extension

A three-day national seminar on fisheries extension, the first of its kind in the country, was held at the Central Institute of Fisheries Technology, Cochin, from December 8 to 9, 1980.

The seminar was jointly organised by the four Fisheries Institutes of ICAR—Central Marine Fisheries Research Institute (CMFRI), Cochin, Central Inland Fisheries Research Institute (CIFRI), Barrackpore, Central Institute of Fisheries Technology (CIFT), Cochin and Central Institute of Fisheries Education (CIFE), Bombay.

The objects of the Seminar were to review the present status of Fisheries Extension,

discuss the problems and evolve an action plan for strengthening and streamlin-

ing the vital field of Fisheries Extension which remains one of the weakest links in the Fisheries development programme.

Over 75 extension experts/delegates representing the Ministry of Agriculture, Govt. of India, Fisheries Departments of Maritime and Inland States and Union Territories, Agriculture Universities and the four ICAR Fisheries Institutes participated in the seminar.

Thirty four papers on subjects like organisational set-up and linkage, technological needs of Fisheries Extension, Fisheries Extension



Delegates visit CMFRI's scientific prawn culture farm at Narakkal in Ernakulam District





Dr. C. C. Panduranga Rao, Director, CIFT inaugurates the Exhibition on Fisheries Extension

Methods, Input supply and Output Management, Extension, Education and Training, Public Policies and Planning for Fisheries Extension etc; were presented and discussed in detail.

While welcoming the delegates on the opening day, Dr. E. G. Silas, Director, CMFRI, said the present seminar would fulfil a long felt need for discussing the problems of fisheries extension in the country. "The character of the fisheries development", he said, "is vastly changed today and we are in the threshold of a new era armed with better knowledge of the fisheries resources, the possession of an Exclusive Economic Zone in our seas, improved and new technologies for increasing production through culture, a well established processing industry,

greater research support and above all, a realisation of its potential is one of the nation's major assets". Dr. Silas emphasised the need for evolving a national policy on Fisheries Extension and to provide necessary technical, administrative and financial support.

The status reports presented by the delegates from the states/union territories pointed out that extension had not received proper share of their fisheries development programmes. The extension wings wherever now available had been established only in the recent years. According to them many states did not have an extension set up at all.

The delegates identified several gaps which needed to be bridged in order to put the available technology into use for increasing fish production and improving the socio-economic conditions of the rural fisheries section. One of the senior participants, Shri A. K. Kawatra, Director and Warden of Fisheries, Punjab, stated that the



A view of CIFT Pavilion

Central Scheme for fisheries extension should be reviewed.

Besides presentation of and discussion on papers, the delegates formed themselves into six task forces to develop strategies and action plans in identified subject areas, including organisational set-up, extension methods and extension education.

Earlier, Dr. C. C. Panduranga Rao, Director, CIFT, opened an exhibition on Fisheries Extension organised in connection with the Seminar at CIFT premises.

The second day session of the seminar was presided over by Shri A. G. Vasavan, Director of Fisheries, Kerala.

Prof. H. P. C. Shetty of the Fisheries College, Mangalore, urged the need that

everybody concerned with extension education must be trained in extension methods also. "We have all to learn from one another", he said.

After much deliberations and group discussions, the seminar formulated specific

recommendations and action programmes to be submitted to the Govt. of India for approval.

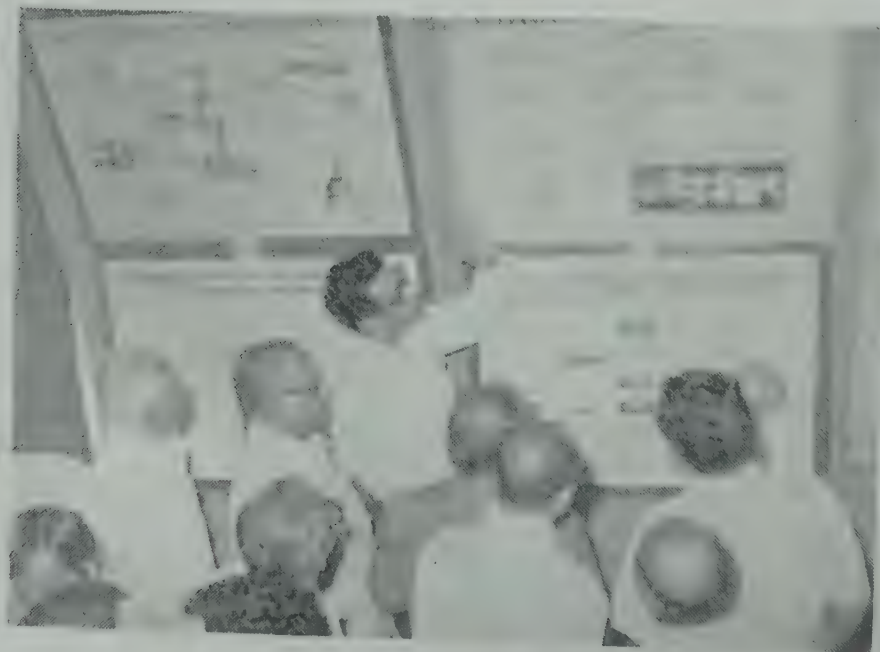
Some of the major recommendations are:

1 There should be explicit linkage among the extension wings of the Centre, States, ICAR and Universities. To ensure prompt transfer of technology services and welfare programmes, finance and other input supply systems should be established at different levels.

2 Taking into consideration that traditional fish production techniques in this country are fairly old, while all advantages for the incorporation of modern technology be taken wherever necessary and applicable, suitable blending of traditional practices



CIFE Pavilion



CIFRI Pavilion



# LAB-TO-LAND PROGRAMME OF CIFT - 12

*One of the highlights of the Golden Jubilee celebrations of the Indian Council of Agricultural Research observed last year was a country-wide programme of transfer of technology known as the Lab-to-Land programme to which CIFT is also contributing in a humble way. In the previous issues we published reports on such programme held at Mangalore, Bombay, Kumarakom, Calicut, Kumbalam, Vaikom, Veraval, Madras, Cochin, Kakinada, Elathur and Badagara. In this issue we present a report on programmes taken up again at Cochin, Kerala.*

## Preparation of low priced Fish Products

As part of the Lab-to-Land Programme of CIFT a demonstration on the preparation of poultry feed mixture and fish soup powder was organised on September 6, 1980 at Chellanam village near Cochin. All the members of 35 families adopted

by CIFT for implementing its Lab-to-Land programmes at this fishing village attended the demonstration.

The programme was inaugurated by Dr. P. N. Kaul, Scientist-in-Charge (Extension) of CIFT, in a meeting presi-

ded over by Fr. Marcel paliath, Chrch priest of Chellanam Village. In his presidential address, Fr. Marcel paliath explained the efforts of CIFT under Lab-to-Land Programme at Chellanam and called for the cooperation of participants to try the new

and sophisticated modern technology be made.

3 The Research Institutes and Agricultural Universities should devote attention to develop location of specific technologies, taking into consideration the diverse biogeographical and hydro-geographical situations existing in the Marine and Inland States and Union Territories

4 The Research Institutes and Agricultural Universities should announce the technologies as ready for transfer only after repetitive field testing and adoptive trials and after proving their suitability for particular locati-

ons and establishing the economic viability.

5 The Fisheries Departments of the States and Union Territories should plan accelerated training programme for extension workers on the effective use of mass media such as Radio, Television, News Papers, Exhibition etc. and other allied aspects on extension and communication systems in the Agricultural Universities and ICAR Institutes which have multi disciplinary activities and are equipped for imparting such training.

6 Researches in extension education and extension meth-

ods be taken up in order to evolve extension systems and methods suitable for different fisheries sectors.

7 The Govt. of India may make policy decision to give priority to fisheries extension as part of programme planning for fisheries development.

8 The Centre as well as the States should make adequate financial outlay for fisheries extension programme and support the programme with necessary infra-structure. Such financial outlays should be reasonably adequate to cover the needs of Fisheries Extension. □



Fr. Marcel Paliath of Chellanam Church distributes sample packets of fish soup powder

technologies developed at CIFT.

Shri M. K. Kandoran, Scientist S-2 (Extension), welcomed the gathering and Shri S. Balasubramanian S-1 (Extension), expressed the vote of thanks.

Shri Ramachandran Nair, Scientist-S-1 (Fish Processing), demonstrated the preparation of poultry feed mixture and fish soup powder. The participants were told that during peak seasons of fishing, the low priced fishes could be utilised for preparing the fish soup powder which would be a nutritious food to children suffered by malnutrition, especially, during off seasons of fishing.

The advantages of preparing a nutrition feed for poultry with the locally available materials like prawn shell waste, dried fish powder, tapioca powder, rice brans, and ground nut cake at a

low cost were also explained to the participants. Leaflets regarding the preparation of poultry feed mixture and fish soup powder were distributed to the participants.

At the end of the programme, for motivating the participants to adopt the new technologies, free samples of fish soup powder and poultry feed mixture which would be sufficient for a month were distributed.

From the bench mark survey of the 35 families at Chellanam, data such as number of birds/family, number of children/family were taken and accordingly, quantity of fish soup powder and poultry feed mixture per family were calculated. The fish soup powder was given to the children below 12 years @ 0.150 gm. per child per family for a period of 1 month and 33 families received it.

(Continued on page 10)



Children of the fishermen families being fed fish soup

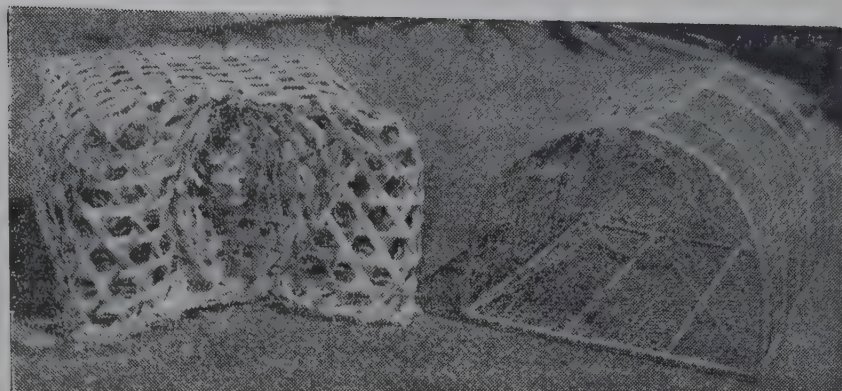


# Modern Traps for Lobster Fishing

Rock Lobsters or Spiny Lobsters are a highly favoured item of sea-food in foreign countries. Increased demands from abroad for Indian lobsters have given a new filip to this hitherto less exploited fishery.

An important lobster fishery worthy of its name now exists only along the rocky inshore waters of the south-west of India covering the maritime States of Tamil nadu and Kerala while in other coastal areas the fishery is less significant.

Survey conducted by CIFT has revealed a number of traditional methods of lobster



Indigenous trap (left) and the modern metal trap (right) for lobster fishing

fishing as practised by the local fishermen. Indigenous traps, anchor hooks spears, scoop nets and gill nets are the common fishing tackles used at present.

As result of comprehens-  
ive field studies so far made,

CIFT has developed a number of modern designs of lobster traps. Prototypes of wooden traps, bamboo traps and metal traps have been put to extensive field tests and trials and their efficiency is being compared with the traditional traps.

Improved bottom-set gill nets based on CIFT design and recommendations are already in wide use.

## TECHNOLOGY FORECAST

1. Juvenile lobsters (young ones) if spared in large numbers to grow to more valuable sizes may contribute substantially to replace the adults removed by fishing.

2. Berried females (carrying eggs) if left alive, will keep up the breeding reserve.



Lobsters caught by traps

# Development of Fisheries in Konkan

The State of Maharashtra is fortunately endowed by nature with marine resources which comprise a part of the Arabian Sea along the four maritime districts. Thana, Bombay, Kulaba and Ratna-

giri, having a total coastline of 720 kms. The area of continental shelf off Maharashtra, i. e. upto 100 fathom line, is 87,000 square kilometres.

In Maharashtra, the in-

shore area upto 10 fathom depth has been intensively fished by the indigenous sail boats and also small mechanized boats. So far as the offshore area, i. e. from 10 to 40 fathom depth is concerned,

(Continued from page 8)

Poultry feed mixture was supplied @ 3.15 Kg. per bird per month and 24 families having birds in their houses received it during the programme.

After one month, as a follow up work of the programme, the extension division of CIFT assessed the response of the participants about the usefulness of the fish soup powder and poultry feed mixture and problems, if any.

Regarding the poultry feed mixture, all the 24 families, reported that it was very useful for them as the birds liked the feed very much. Majority of the families (87.5%) did not like to prepare the feed themselves as they have only 2-3 birds in their houses. But they were prepared to purchase, if it is made available in the market at moderate rate.

Regarding Fish soup powder, out of the 33 families children from 18 families (54.5%) liked it while in 15 families (45.5%) they were not interested due to difference in the taste. Only 3 families (9%) were interested to prepare the fish soup powder in their houses. Others were not interested as fresh fishes were available during most of the days and also due to financial constraints. □



Supply of poultry feed mixture



fairly intensive fishing is done from 10-20 fathoms. Comparatively the intensity of fishing from 20 to 40 fathoms is much less. Fishing beyond 40 fathoms is almost non-existent except for a few mechanized boats operating from Thana District with gill nets for pomfrets. There is, therefore, scope to intensify the fishing efforts in the area from 20 to 40 fathoms and extend the fishing operations beyond 40 fathoms depending upon the economics of the operation. The Government of India has completed a survey of fishing resources off Maharashtra, Goa and Gujarat from 30 to 100 fathoms in collaboration with the Government of Poland.

There are some organisations in the private sector who would be willing to take up deep sea fishing projects provided the necessary infrastructure such as good harbour, sites for establishing processing plants, communication, shipping facility etc. are made available. Government's role at this stage could be to provide the aforesaid facilities and encourage foreign collaboration wherever necessary. This will also facilitate exploitation of fisheries resources in the 200 mile economic zone. The State Government is also making efforts to undertake Deep Sea Fishing with foreign collaboration through

the Maharashtra Fisheries Development Corporation Limited, a State Government undertaking.

The mechanization of the fishing craft was really a turning point in the development of the fishing industry. This has brought about extension in the fishing operations and increased production of fish. So far 2,697 mechanized boats are introduced by availing of the Government finance. Similarly, as an incentive to change over from cotton to synthetic fibres for fabrication of gear, subsidy is given by the Government. All these efforts have resulted in increasing the fish production from 1.34 lakh metric tonnes during First Five Year period to 3.58 lakh metric tonnes at present.

Associated with mechanization are other essential steps to be taken so as to make the programme a success. To impart knowledge of diesel engines and their maintenance to the members of the fishing community and to train them in improved methods of fishing, four training centres, one in each marine district, have been established where 176 fisher youths are trained every year.

Preservation of fish on landing is an important task in the development of marine

fisheries since fish is a quickly perishable commodity. Hence liberal financial assistance to fishermen's co-operative societies for establishment of ice and cold storage plants, purchase of transport trucks is being given by the Government.

During the Five Year Plan 1978-83 it is proposed to introduce about 368 mechanised boats expecting an increase in fish production of about 20,000 metric tonnes per annum.

The Maharashtra Fisheries Development Corporation Limited, which is planning to expand its activities, will also be assisted financially to undertake (1) deep sea fishing project, (2) processing and marketing of diversified fisheries products and (3) processing and export of shrimps. Thus, systematic efforts are made to develop the marine fisheries of the Konkan coast in all its aspects by associating the fishermen as closely as possible so that along with the development of fishing industry the socio-economic condition of the fishing community will also be improved. (INDIA to-day & tomorrow.)

*uu*

# Fishing Boat for Reservoirs: Fishtech No. 10

The Regional Research Centre of the C. I. F. T. at Burla (Orissa) has recently

acquired a new mechanized wooden boat for carrying out investigations on experimental

trawling in the Hirakud Reservoir and thereby boost up fish production of our inland waters

## BOAT PARTICULARS:

Length over-all	:	9.14 M (30 ft.)
Beam maximum	:	2.82 M
Draft	:	1.20 M
Displacement	:	4.6 tons (approx.)
Main engine	:	45 BHP at 1800 r.p.m. with a 3:1 reduction gear
Propeller	:	775 mm dia./3 bladed
Deck machinery	:	2 drum trawl winch (CIFT design)
Speed	:	6 to 7 knots

The above boat was constructed at Cochin under the technical supervision of CIFT Scientists and as per CIFT design and specifications.

---

## FAO INVITES CIFT SCIENTIST

### Fishing Craft and Gear Technology

Specialists from Governments of member-countries and voluntary organizations directly involved in programme activities related to the subjects were invited to attend the consultation meeting convened at Madras during September 1980 (22 - 26th) and October, 1980 (13 - 17th) by the FAO/SIDA for the Development of Small Scale Fisheries under their Bay of Bengal Programme.

Shri R. Balasubramanyan, Scientist-in-Charge of the Craft and Gear Division of C.I.F.T.,

Cochin, attended the above consultation meeting and actively participated in the deliberations. Specific subject matters were reviewed and discussed.

India, Bangladesh, Sri Lanka, Thailand and Malaysia were the participating countries besides BOBP Project Staff and Consultants.

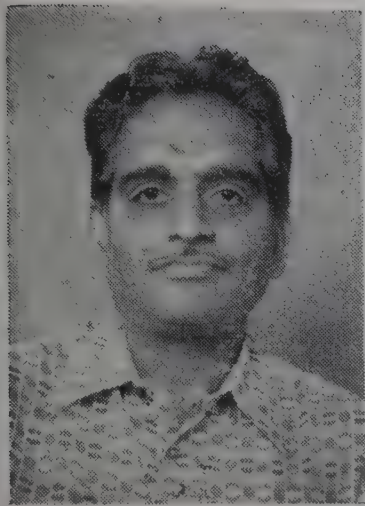
The purpose of the consultation was to review the results, performance and scope of the work undertaken by the BOBP on fishing Craft, Gear and Methods so as to gener-

ate ideas and guidelines for (1) dissemination of conclusive results (2) suitable operational arrangements for ongoing and future activities and (3) future areas of work in the participating countries.

Under Fishing Craft technology (1) traditional fishing crafts (2) Beach Craft development and (3) Materials for boat-building formed the main field of discussion while consultation on Fishing gear and methods covered gill netting, demersal fishing, trawling and allied subjects.



# Dr. Panduranga Rao, CIFT Director



Dr. C. C. Panduranga Rao, Scientist - S3 and Scientist-in-Charge of Kakinada Research Centre of CIFT took charge as Director of CIFT on December 1, 1980. The post of Director had fallen vacant following the death of Shri G. K. Kuriyan.

Dr. Rao, senior Bacteriologist of CIFT, hails from Bhimavaram, West Godavari District of Andhra Pradesh. He took his B. V. Sc degree from Madras University in 1954 and worked as Veterinary Asst. Surgeon/Extension Officer(A. H.) in Andhra State Service before joining the first batch for M. V. Sc. at Indian Veterinary Research Institute (IVRI), Izatnager/Mukteswar, U. P. in 1958.

After obtaining the Master's Degree, he joined the IVRI as Asst. Bacteriologist and carried out research work on different aspects of Veterinary and food bacteriology in addition to post-graduate teaching in Bacteriology and Immunology.

Dr. Rao underwent training in Epidemiology and Control of Communicable Diseases in man at the National Institute of Communicable Diseases, New Delhi in 1969-70 and proceeded to the United States of America for specialised training in Veterinary Public Health with special reference to Food Hygiene under a W. H. O. Travelling Fellowship.

On return, he joined the teaching staff of the Veterinary Public Health Division of IVRI.

He took his Ph.D. degree in 1972 and joined CIFT in 1975 as Scientist-S3.

---

## ICAR Tournaments

In the second ICAR Zonal (Zone IV) sports meet held at Coimbatore from Nov. 16 to 23, 1980 CIFT retained all trophies of last year.

The Institute's Men team bagged the championship in Foot ball and Badminton, both singles and doubles. The

Ladies team were the runners up in badminton, (Singles and doubles).

First places in High Jump, Triple Jump and Javelin Throw were won by the athletic team. In all, the Institute secured 76 points.

The Zonal winners will

take part in the Interzonal Meet at Cochin for athletics and at Karnal for team events.

Dr. K. Ravindran, Scientist-S2 and Shri A. Vasanth Shenoy Scientist-S1 served as members in the Zone IV Management committee for sports.

# GLEANINGS FROM OTHER JOURNALS

## Indian Exports to U. S. touch a Billion Mark

Indian Exports to the United States touched US \$1 billion mark during the fiscal year 1979-80, as against US 986 million recorded in 1978-79—an increase of 12%. Some of the major commodities which registered increase in exports during 1979-80 over the previous year included jute, engineering goods, shell fish, tea spices etc.

—Indian Seafoods

## Fishery Research Vessel

“R. V. Skipjack”, the first fishery research vessel built indigenously for the Central Marine Fisheries Research Institute, Cochin, was launched at Calcutta by Dr. E. G. Silas, Director of the CMFRI. The vessel is equipped with modern navigational and fishery equipment and sophisticated acoustic instruments.

The 107. ft. vessel was built at the Garden Reach Shipyard, Calcutta, based on Norwegian design. Dr. Silas

said at Cochin that the vessel would increase the capability of the CMFRI to conduct research and survey cruises in the Indian Ocean, the Arabian Sea and the Bay of Bengal.

The Vessel, which can stay at the sea for 24 days at a stretch can carry out different types of fishing operations including purse-seining for tuna in the high seas and deep-sea trawling and carry out acoustic surveys for estimating the fish stocks.

Simultaneously data would be collected on fishery oceanography and marine meteorology to get integrated Pictures of the resources and environment. The vessel has a laboratory and can accommodate five scientists besides the crew.

## Purse - seine banned in shore waters

The Government has banned the use of purse seine and four other types of fishing gear within the territorial waters.

The other types are ring

seine, pelagic trawls, mid-waters trawls and bottom trawls.

Announcing this two news men, Revenue Minister P. S. Sreenivasan who is also in charge of fisheries, said that these gear could however be used outside the 22 km territorial water zone.

— Indian Express

## Indian Marine Products in demand in S. E. Asia

Indian marine products have good demand in the South East Asian region and particularly in Hong Kong and Singapore, according to a market survey conducted by the marine Products Export Development Authority (MPEDA), reports UNIFIN.

The survey says as Indian marine products are concerned, there is an increasing demand for frozen items in Hong Kong. Any good looking fish in frozen form is acceptable to the Hong Kong consumers. Hong Kong market is prepared to pay attractive prices because of the high demand. Hong Kong annually imports about 10,000 tonnes of frozen fish.



# CIFT Appointments

1. Shri K. J. Francis Xavier joined as skipper(T-7) at Headquarters, Cochin

2. Shri P. J. Joseph, Superintendent, was appointed as Asst. Administrative Officer at Nat-

ional Bureau of soil Survey and Land use Planning Research Centre, Bangalore

Hong Kong is the second largest frozen shrimp importing country in the east. It annually imports about 17,000 tonnes and needs only second grade variety. The quality of Indian shrimp is accepted to be good but our prices are high. If prices could be brought down to competitive level India would be able to export about 10,000 tonnes annually. The country exported only 23 tonnes last year, the report adds.

The survey says Hong Kong which is the world's largest shark-fin-market, imports about 39,000 tonnes annually. Indian shark-fins are well known among the importing countries but all of them have the same complaint that India cannot fulfil its commitments.

As regards Singapore, the survey says it is basically a fish importing country and regularly imports fish meal, crustaceans and molluscs. Part of the imports are re-exported to other countries.

Singapore is a traditional market for the Indian dried marine products. Occasionally, India also exports fish meal to Singapore.

According to the survey, India having the advantage of proximity will be able to compete effectively in the Singapore market with her fresh and frozen fish. The Singapore buyers are prepared to pay a higher price for similar items in frozen form. Singapore is the second largest fish meal importing country in the east and its annual imports are about 50,000 tonnes. India could supply large quantities of fish meal to this market if our production base is strengthened adequately, it adds.

— ECONOMIC TIMES

## Marine Exports

Export of marine products from India, consisting largely of shrimps, rose from Rs. 180.95

crores in 1977-78 to Rs. 234.62 crores in 1978-79 and to Rs. 248.82 crores in 1979-80. The growth of 1978-79 was supported by a rise in the face of a slight decline in the unit value realised therefrom while the growth of 1979-80 was supported entirely by a gain in unit value realisation. It had been expected that advantage would be taken of the sustained (though gradual) rise in unit value to export a larger quantum (somewhat over 86,000 tonnes in 1978-79 and in 1979-80) during 1980-81 to garner an export income of Rs. 300 crores. Available data, however, suggest a slippage from the target. During the first quarter, April-June, 1980, marine exports amounted to Rs. 48.24 crores against Rs. 73.23 crores in the corresponding quarter of 1979-80. It is of course possible to make up the Rs. 25 crore shortfall during the remaining three quarters of the year.

— Economic Times

〰〰

## K. KRISHNA RAO



The need to have reliable data on some important aspects of fisheries, is keenly felt many a time. The present availability of data in fisheries, is restricted to a few areas and in many others, either it is not available or is available only in scant or obsolete form. Shri K. Krishna Rao, a scientist in Statistics section of the F.I.S. Division(CIFT, Cochin), keeps this in view to obtain, if not exact, atleast reliable data on some of the technological aspects in fisheries, which might be useful in any programme in future.

Shri Rao joined Central Marine Fisheries Research Institute, Mandapam Camp, as Research Assistant(Statistics) in December, 1956. On selection by UPSC, he joined as Asst. Research Officer (Statistics) at CIFT, Cochin, in October, 1963. He was junior

Statistician in the Co-ordinated Research Project on 'Transportation of Fresh Fish and Utilisation of Trash Fish' from November 1971 to April 76, when he went on deputation to Pelagic Fishery Project (PFA) at Cochin, as Senior Biologist(Assessment). On termination of the deputation, he was reverted back to CIFT in September 1979 and at present is officiating as Scientist S-2 in Statistics.

Shri Rao had occasion to work on different areas in fisheries during the course of his twenty five years of official career. In the course of his duties at CMFRI, he was dealing with the estimation of marine fish landings in the maritime states, and with the statistical analysis and interpretation of biological data. At CIFT, he had research projects on statistical applications in quality control. He made a study of the ISI Standards on frozen shrimp and worked out criteria for modifications in the existing standards, and for the formation of pre-shipment inspection lots of frozen shrimp for the sampling inspection to be effective. On the Co-ordinated project, he was dealing with the economics of transportation of fresh fish between pairs of selected centres, in frozen and iced forms. At PFP he was associated with

the estimation of pelagic fishery resources in the Project area (Ratnagiri on the west coast to Tuticorin on the East Coast). He has participated in some of the cruises of the PFP Research vessels in this context. He was also on the team which undertook the aerial frame survey for estimation of fishing craft in the Project area. At CIFT, he is at present studying the pattern of utilisation of commercially important fish, as a component of which he is estimating the quantities of raw material received by the freezing factories at selected centres like Cochin, and the main sources of supply of such raw material.

Shri Rao was born in May, 1934. He received his earlier education at different places in Andhra and had his B.A. (Hons) in Mathematics from the University of Madras in 1954 and M.Sc. in statistics from Andhra University in 1956. He has published about twenty technical/research papers. He has visited the FAO head quarters at Rome during January-February 1979 in connection with the preparation of the project report of PFP.



## CIFT is at your Service

*It transfers Fishery Technology by way of:*

- ◆ Demonstrations of Fishing and Fish Processing techniques envolved by it
- ◆ Answering Technical queries
- ◆ Supplying project reports and desgim drawings
- ◆ Training courses of fishing and fish processing

*Please contact:*

Director,  
C. I. F. T.,  
Matsyapuri P. O.,  
Cochin - 682 029







# Fish Technology newsletter

Vol. II

No. 11

JANUARY-MARCH 1981



NDRI contingent, winners of G. K. Kuriyan Memorial Rolling Trophy in the second ICAR Inter-zone Athletic Meet, with Shri Pilipose Thomas (standing 6th from left), District Collector of Ernakulam. (Report on page-4)

**CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY**  
MATSYAPURI P. O.

COCHIN - 682 029

## CONTENTS

	Page
1. Foreword	3
2. Second ICAR Inter Zone Athletic Meet	4
3. Research Highlights of Central Institute of Fisheries Technology, Cochin During 1980 - 81	5
4. CIFT Staff Research Council	8
5. New Trawler for CIFT	9
6. Training	9
7. International Marine Equipment Exhibition and Boat Show	10
8. Norad Fellowship	10
9. Economics of Fish Curing - A Case Study	11
10. Success	12
11. Let's Talk it Over	13
12. CIFT Appointments and Promotions	13
13. Gleanings from Other Journals	14
14. Meet Our Scientists	15



# Foreword



## EDITORIAL COMMITTEE

Shri BALASUBRAMANYAN  
*Chairman*

Shri K. C. PURUSHOTHAMAN  
*Secretary*

Shri P. MADHAVAN  
*Member*

Dr. P. N. KAUL  
*Member*

Fish Technology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Photography Shri K. BHASKARAN

Art Shri G. MOHANAN

Abbreviation: *Fishtech News*

Editorial Committee.



Dr. M. V. Pyres, Vice-Chancellor of Cochin University, takes the salute at the opening ceremony.

## Second ICAR Inter Zone Athletic Meet

The G. K. Kuriyan Memorial Rolling Trophy, instituted by the staff of CIFT, Cochin has been bagged by the National Dairy Research Institute (NDRI), Karnal, in the second ICAR Inter-zone Athletics Meet ended on March 7, 1981 at Cochin. The trophy was instituted in memory of late Shri G. K. Kuriyan, Director of CIFT.

Shri Tejpal Singh of NDRI from Zone I and Smt. Sunanda of Central Plantation Crops Research Institute (CPCRI), Kasargode from Zone IV were adjudged athletic men's champion and women's champion respectively. Zone IV consisting Indian Institute of Horticultural Research, Karnal, Central Institute of

Fisheries Technology, Cochin, Central Marine Fisheries Research Institute, Cochin and

CPCRI topped the list with 18 points for men and women events taken together.



Smt. Philipose Thomas presents the G. K. Kuriyan Memorial Rolling Trophy to Dr. O. S. Tomar, Manager, NDRI Contingent.



# Research Highlights of Central Institute of Fisheries Technology, Cochin During 1980-81

The Institute continued its research and development activities and achieved steady progress during the year under report.

## 1. Development of smoked fish fillets:

Smoked fillets which can be used for preparation of chutney powder and ready-to-serve products were prepared from sardine. Smoked eel fillets were found to have better flavour and texture when compared to non-smoked fillets.

## 2. Standardisation of methods for canning ghol, horse mackerel, hilsa roes:

Methods have been standardised for canning of ghol, horse mackerel and hilsa roes.

3. **Method for skinning of mackerel for preparation of canned fillets:** A modified method has been developed for skinning mackerel for preparation of canned boneless skinless fillets.

## 4. Studies on green discolouration of canned tuna:

Studies on the problem revealed that development of green discolouration is related to the initial quality of the raw material.

5. **Method for control of insect infestation in smoked mussel meat:** A simple method comprising of thermal treatment was developed to control insect attack of smoked mussel meat.

6. **Utilization of jawala prawns:** Methods have been developed to prepare a dried product of superior quality and sauce from jawala prawns.

7. **Chutney powder from mussel meat:** Suitable formula for preparation of chutney powder from mussel meat has been worked out.



Dr. C. C. Panduranga Rao, Chairman, Organising Committee, welcomes the gathering

One hundred and forty three athletes including 15 women from 30 ICAR Institutes and ICAR head-quarters took part in the two-day meet.

Prof. Dr. M. V. Pylee, Vice Chancellor, University of Cochin, inaugurated the Meet at Maharajas College Stadium.

Shri Philipose Thomas, Ernakulam District Collector

was the guest of honour on the concluding day. Smt. Philipose Thomas distributed the prizes.

Dr. C. C. Panduranga Rao, Director, CIFT was Chairman of the organising Committee and Dr. K. Ravindran was the Convener of the athletic meet.

**8. Enhancement of storage life of fish fingers:**

A method consisting of incorporation of monosodium glutamate has been developed for enhancement of storage life of fish fingers.

**9. Isolation of new rare serotype of salmonella from fish/shrimp/froglgs:**

*S. larochelle* from frozen frog legs and *S. orion* from frozen shrimp and fish were isolated for the first time from sea-foods in India

**10. Method for control of deteriorative physical changes in master and duplex cartons during frozen storage:**

A method comprising of coating of the cartons with wax twice was developed to control the deteriorative changes in master and duplex cartons during frozen storage.

**11. Improvement of quality of master cartons:**

Studies on this aspect revealed the efficacy of chitosan to improve the strength and prolong the life of master cartons made of corrugated kraft paper.

**12. Development of combined antiboring and antifouling paint:**

A combined antiboring and antifouling paint has been developed for application on boats and tested with satisfactory results.

**13. Anodic metal coating for increased life for fastenings:**

It was found that

anodic metal coatings of zinc, aluminium and cadmium on mildsteel boat fastenings provided compatibility and increased their service life with the common boat building timbers now in use.

**14. Preservatives for country craft:**

At Cochin, traditional country crafts (thanguvallam), (dug out canoes and built up canoes of 15-18 m. OAL) were treated with oil borne wood preservatives for enhancing their service life. The method of preparation of the preservatives and mode of application were demonstrated in the field with the active participation of the local fishermen.

**15. Comparative study of trawls:**

Studies on the comparative efficiency of three designs of trawls, viz. 25 m. bulged belly, 25 m. six seam and 25 m. high opening trawl confirmed the suitability of 25 m. high opening trawl for capture of bottom or off-bottom species.

**16. Development of a mini purse seine:**

A mini purse seine not operable from motorized/non-motorized country crafts was designed and fabricated and trial operations were made successfully.

**17. Introduction of improved boat seine:**

Improved thanguvala, a single boat seine net, fabricated with knotted

and knotless webbings was introduced for increased fish catch compared to the traditional type of net.

**18. Development of lobster traps:**

Five different types of lobster traps were designed, fabricated and introduced in fishing villages of Kanyakumari district in Tamil Nadu.

**19. Development of shore seine for reservoir fishing:**

A shore seine net was developed for use in reservoirs and the trial operations were carried out successfully.

**20. Development of inboard/outboard drive:**

Design of the inboard/outboard drive already developed at the institute was handed over to NRDC for commercial exploitation.

**21. Motorization of country crafts:**

Suitable modifications were suggested to the existing country crafts for facilitating mechanisation with light engine. The existing hulls were shaped finely to reduce the frictional resistance and to suit motorisation.

Demonstrations and actual fishing operations were carried out by installing 1) inboard light diesel engine, 2) inboard engine with outboard drive and 3) outboard kerosene engine.

**22. Development of machine for production of isinglass:**

A hand operated machine



was designed and developed for production of isinglass from fish bladders.

**23. Development of Salinity, Temperature and Depth Meters:** A salinity, temperature and depth meter was developed for measuring salinity, temperature and depth of oceanic estuarine waters. The temperature and depth are obtained directly from the liquid crystal display (LCD) and the salinity values are found out from a calibration chart.

**24. Development of safety alarm for marine engine bearings, exhaust gas etc.** A safety alarm was designed and developed for maintaining the temperature of marine engine cylinders, bearing, exhaust gas etc. The instrument gives an alarm when the temperature exceeds the preset limits. This instrument can also be used with suitable probes for measurement of liquid temperature, air temperature and surface temperature.

**25. Development of electronic boat log:** Design, development and field trials of an electronic boat log has been completed successfully. This instrument is used for the measurement of speed and distance travelled by small and larger boats. It is a further improvement over the earlier model, incorporating digital

pick up and displaying distance travelled.

**26. Development of freezer temperature alarm:**

The Institute has developed Freezer Temperature Monitor and alarm for measurement of the temperature in cold storages with additional facility for remote display. The alarm will indicate the change of temperature from the normal level. The information can also be fed to continuous recorders for permanent records.

A modified version of the above instrument with six channels was fabricated and installed at the Indian Institute of Sugarcane Research, Lucknow as per request for conducting studies on heat penetration in sugarcane stocks, in connection with its heat therapy treatment.

**27. Lab-to-land programme**

**a) Fabrication of modern fishing gear:**

As part of the lab-to-land programme, a training course of one month duration on fabrication of modern fishing gear was organised for the benefit of the fisherwomen at Badagara, a fishing village in Kerala. 100 fisherwomen were given training on the various aspects of fabrication of modern fishing gear. The fisherwomen trained under this programme have formed a

Society and started fabrication of fishing nets as a small scale industry.

**b) Processing of mussel meat:**

Another training under lab-to-land programme was organised on processing of mussel meat at Elathur, Calicut district in Kerala State. The aim of this programme was to enable the villagers of the area to take up commercial production of processed mussel meat on scientific lines. Thirty three persons including six fisherwomen participated in the programme. As a result of this programme, 5 parties are producing and marketing mussel meat pickle.

**c) Production of poultry feed:**

A demonstration on preparation of poultry feed from prawn shell waste was organised at Chellanam, a fishing village. Poultry feed thus prepared was also distributed to the adopted families.

**28. Other training programmes:**

**a) Methods of analysis in quality control of seafoods:**

A training course on methods of analysis in quality control of seafoods was conducted at Cochin in two batches of two months each. With this the industry is equipped to set up quality

# CIFT Staff Research Council

The Staff Research Council of CIFT held on March 18, 1981, scrutinised and finalised 17 new Research Projects to be taken up during the current year.

The Council also reviewed the progress of the on going 17 projects. Thirteen projects were reported to be completed last year.

Approval was given to an application for patent on "Improvements in or Relation to Anti-fauling composition".

The Scientists also examined the samples of canned products and fish skin leather developed at the Veraval Research Centre, Jawala Chi-

tosan, dried meat and sauce made of Jawala prawns from Bombay Centre and the icing glass prepared by Kakinada Centre.

The new projects includes the rural oriented projects like improvements to the traditional fishing craft gear methods of the coastal waters etc. They will help the traditional fishermen to improve their economy.

Apart from the various projects on improvement of methods of offshore fisheries some of the projects under processing technology also cover development of non traditional products from fishery waste and diversified products.

Projects on the development of packaging for fish and fishery include development of cheap and efficient packaging materials both for internal and export markets, studies on the effect of packaging materials on the quality/shelf life of fishery products etc.

Projects under the Engineering/Instrumentation cover the development of electronic equipments, design development of pilot plants, equipments for fishing and fish processing etc.

Director, Dr. C. C. Panduranga Rao, presided over the Council meeting.

---

control laboratories and conduct inplant preshipment inspection of processed fishery products.

**b) Production of canned froglegs and shark fin rays:**  
Training programme on

production of canned froglegs and extraction of shark fin rays were organised in collaboration with Marine Products Export Development Authority for the benefit of the fishing industry.

**c) Ad-hoc** training was given to a few parties in quality control analysis of seafoods, modern methods in fish curing and production of diversified fish products.



# NEW TRAWLER FOR CIFT

CIFT has acquired a new 17.5 m steel Trawler, "Matsyakumari", indigenously built at the Mazagon Docks, Bombay.

Fitted with a 277 B. H. P. engine, the trawler was built as per standard design and CIFT Specifications with a capacious fish hold of 15 tons, the trawler has a maximum speed of 8 knots.

The vessel will be utilized for carrying out research investigations on various fishing gear and methods in the off-shore waters.

Dr. C. C. Panduranga Rao, Director, CIFT, took over the trawler at Bombay on March

3, 1981. Later it was brought to Cochin on her own power.



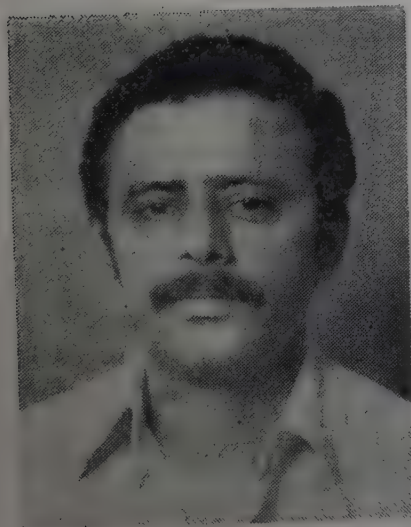
## TRAINING

Mr. Abdulla Mohammed Hammadi, Acting Director, Research Department of Peoples Democratic Republic of Yemen has completed eleven days training at CIFT in various fields of Fisheries Technology from January 8, 1981.

Mr. Mohammed has worked two years in shrimp culture and six months in oceanographical surveying.

From October 1979 to August, 1980 he was Deputy Director of the Research Department. In August 1980 he became the Acting Director.

He also spent some time in the Central Marine Fisheries Research Institute, Cochin.



# International Marine Equipment Exhibition and Boat Show

A two week International Marine Equipment Exhibition and Boat Show will commence on December 10, 1981 at Madras. Sponsored by the Madras Port Trust and allied organisations, the show will cover among many other things, (1) Boats and Trawlers

in steel, wood, fibre glass etc., (2) Fishing gear and nets (3) Ropes and Cordages of steel, sisal, manila and polypropylene and (4) Marine engine, stern gear propellers, deck machinery etc.

The Hony. Secretary, In-

ternational Maritime Conference & Expo 1981 (Room No. 4, Administrative Building Annexe, Madras Port Trust P. O. 600 001) has invited participants to share in India's future plans for the development of its ports, shipping, off-shore industry and fisheries.

---

## NORAD FELLOWSHIP

Shri K. Devadasan, Scientist S-2 has joined the Biochemistry and Nutrition Division of CIFT after one year work in Norway as a Norwegian Agency for International Development Fellow (NORAD).

He was working in "Nutrition in Fish and Fishery Products" at the Norwegian Herring Oil and Meal Industry's Research Institute at Fyllingsdallen, Bergen.

The fellowship was awarded through the Ministry of Education, Govt. of India, New Delhi. Availing this fellowship, Shri Devadasan worked in the Experimental Farm

Laboratory of SS. F (Sildoljog si demel Industriens Forsknings Institutt) at Titlestad, Bergen from January 1980 to December 1980. He had the opportunity to work with the famous Norwegian Scientist Dr. Johannes Opstvedt, (currently working in Seattle U. S. A.) during this period, on the effect of the extent and mode of heat treatment during fish meal manufacture, on the nutritional quality of the finished product. The Nutrition Lab. of S. S. F. is a well equipped and internationally recognized laboratory which conducts extensive studies on different nutritional aspects of fish meal and other

functional fish protein concentrates. The Institute has patented several new processes for producing functional fish protein concentrates also. The Farm Laboratory has facilities for feeding studies using different types of experimental animals like sheep, goats, chicken, calves, pigs and minks. Shri Devadasan made use of the opportunity to familiarise himself with modern techniques of protein quality evaluation.

During his stay in Norway, Shri Devadasan had occasion to visit other leading Norwegian Laboratories working on different aspects of Fish Processing

(Continued on page 12)



# Economics of Fish Curing - A Case Study

Fishing has been an important vocation of a sector of Indian population. Fish is an addition to the daily menu among all the categories of people in recent years, both at the coast as well as inland. To suffice the demand they have to be stored, transported for many days and weeks, if need be to obtain a market. Hence, this period from catching to marketing is too crucial as it affects the quality, price and marketability of the product.

An important method which has been in vogue among the fishermen is the curing of fish. The process of curing is to transform the raw fish into a product that has a higher keeping quality without affecting the nutrient value and palatability of the material. There are different methods of curing such as drying, salted dry curing, salted wet curing, etc.

In spite of the different procedures of curing followed by fishermen in practice, the systematic study on the economics of each of the methods is lacking. Hence, the present study is in this direction to study the economics of fish curing in Calicut of Kerala State, by salted wet curing method. The study is mainly confined to a one day analysis. It was conducted in the fishermen colony near Calicut on 5-10-1979. The data pertains to only Ribbon Fish which was used for curing. The fisherman selected was neither indebted to any outside marketier or any one, hence the bias in pricing was not expected.

TABLE I THE ECONOMICS OF FISH CURING:

## I Benefit Stream :

(a) Income obtained by selling the cured ribbon fish on the spot	Rs. 2625.00
Total benefits	Rs. 2625.00

## II COST STREAM

	COST IN RUPEES	% SHARE TO TOTAL EXPENDITURE
--	----------------	------------------------------

a) Purchase of ribbon fish at landing site (1800 Kgs.)	1500.00	67.27
b) Salt used for curing	300.00	13.45
c) Labour involved to bring fish to curing yard from landing site (About 100 ft.)	150.00	6.73
d) Labour involved for the curing process		
e) Labour used for packing of fish after curing	180.00	8.07
f) Cost of packing material	100.00	4.48
Total Expenditure	Rs. 2230.00	100.00

1	Net gain to the curer -	Rs. 395.00
2.	BCR	- 1.17
3.	Gain over investment -	17.71%

The above table indicates the cost - benefit factors in the curing business. It could be noted from the table that a major portion of the expenditure is towards purchase of raw material for curing, which is

followed by the labour expense and packing material. However, considering the business as a whole, the expenditure comes to Rs. 1.41 per kg. of ribbon fish handled.

Written by G. R. Desai and Dr. P. N. Kaul of CIFT, Cochin

# SUCCESS



Shri K. M. Mathai, Senior Administrative Officer of CIFT, has been awarded a post graduate Diploma in Personnel Management and Industrial Relations by the Punjab University. This is in addition to another Diploma in Office Organisation & Procedure awarded by the same University in 1977.

Shri Mathai has completed a two-year study course in Homeopathic system of Medicine by postal tuition and has come out in first class. He has also completed a two-year training course of painting/cartooning.



Considering the income obtained by the curer due to on-the-spot marketing of the fish cured, the net gain was found to be Rs. 395/-. This was for the particular day and type of fish. The BCR was found to be 1.17, so also the percentage

gain over investment was 17.71% indicating that the business was profitable.

From the above data it could be inferred that salted wet curing procedure would involve a little investment, but adds a

lot to the net profit to the curers. This would be more beneficial for the small scale fishermen who have limited resources. Hence, there is a need to educate fishermen over proper curing procedure as majority of them do not follow it, which will pay off higher returns.

(Continued from page 10)

Technology. The Fishery Technology Research Institute (FTFI) of Norway has its processing laboratory in Tromsø. This Institute under Dr. Terje Strom and the Department of Fisheries at Tromsø University under Dr. Jan Rao, work in close

collaboration. At their invitation Shri Devadasan visited their laboratories. Dr. Sverre Rasch of the Norwegian Canning Industry's Research Institute, at Stavanger also extended an invitation to him to visit his Laboratory. He also visited Norwegian Food Research

Institute at Ås under Dr. Tore Hyem and Govt. Vitamin Laboratory under Dr. Braekken. Shri Devadasan could also see the International Fisheries Fair, "Nor Fishing 1980", held at Trondheim in Sep. 1980.





# Let's Talk it Over

M/s K. M. SEAFOODS  
(GOA), PANAJI

we intend to freeze mackerels, catfish, ghol gillets, seer fish for export as well as local use. To lengthen their shelf-life after freezing, we would like to have your technical advise.

CIFT : The general method of freezing mackerels, cat fish, ghol fillets and seerfish is explained below.

## FREEZING MACKERELS :

Mackerels are frozen in the round form as glazed blocks. Fresh mackerels are collected, washed well and packed in trays (say 2 Kg). Cold water (2-3°C) is added to cover the fish completely and frozen as usual. The frozen material is reglazed, wrapped in polythene and packed in waxed duplex cartons. The frozen blocks are then packed in master cartons made of corrugated film board and stored at -23°C or below. Instead of freezing in trays carton freezing can also be adopted.

## FREEZING CAT FISH AND GHOL :

They can be frozen as skinless fillets. The filleting and skinning can be done manually. The skinless fillets are washed thoroughly in potable water and frozen either individually or as blocks. The frozen fillets are to be glazed with water and wrapped in polythene sheet (200 gauge) to enhance the storage life. The frozen material is then stored at -23°C. Individually frozen fillets of Cat fish, glazed and wrapped in polythene will remain in edible condition for 4-5 minutes under frozen storage. The fillets frozen as glazed blocks and packed in polythene lined wax cartons will remain in good condition for 6-8 months at -23°C. The storage life of frozen ghol fillets is slightly more compared to cat fish fillets.

## FREEZING SEERFISH :

Seerfish can be frozen as chunks or fillets. The frozen chunks or fillets are glazed and wrapped in polythene sheets

200 gauge) and stored at -23°C (in corrugated fibre board boxes).

## DIRECTOR OF FISHERIES, ANDHRA PRADESH.

We would like to know your opinion on the desirability or otherwise of the various H. P. of engines that can be used for 10 mt and 9 mt. hulls.

CIFT : Range of Horse power as recommended by CIFT For its vessels is given below :

SIZE OF VESSEL	RECOMMENDED HORSE POWER
9.14 m (30 ft)	30 to 35
9.75 m (32 ft)	40 to 45
10.97 m (36 ft)	60 to 70

As the size of 10m vessel is coming under the range of 10.97 OAL of CIFT design, the range of HP of 60 to 70 is recommended for this type of vessel. Since the size of 9 m. vessel comes under the range 9.14 m OAL of CIFT design the range of HP of 30 to 35 is recommended for this vessel.

## CIFT Appointments and Promotions

### APPOINTMENTS

1. Smt. Tara Kuruppalli and Smt. M. K. Sreelekha as Technician - I (Junior Lab Assistants) at Calicut Research Centre.

2. Shri D. Gopalakrishna Rao, S. S. G. III was appointed as Technician-I (Deckhand) at Headquarters.

### PROMOTIONS

1. Shri P. Vasudevan, Senior

Clerk of Veraval Research Centre, was promoted as Assistant.

2. Shri V. R. Kesavan, Junior Clerk was promoted as Sr. Clerk at Headquarters.

# Gleanings from Other Journals

## SEA FOOD SNACK BAR

The Kerala Fisheries Corporation has opened a sea food snack bar at Malampuzha.

This is the second snack bar opened by it, the first being at Marine Drive, in Ernakulam. It has plans to open such bars at Trivandrum and Calicut.

Besides the snack bar, plans to open a cold storage shop to preserve and sell fish in the town are being made. The Corporation authorities feel that this would help it to popularise fish and fishery products.

## "DYNA-SHIP" POWERED BY 30 SAILS

- Return of big sailing ships -

Experts in the Federal Republic of Germany foresee a comeback of big sailing ships. The German Federal Institute for Fisheries Research, one of the world's leading fisheries research centres, recently began investigating "the use of sailing ships in the marine fishing industry". The first sail-powered German fishing vessel for many years will soon go into operation. The diesel engine on board will only be used when there is no wind.

For the experts at the Fish-

eries Research Institute it has been clear from the outset that a considerable amount of work awaits them, despite a tremendous store of past experience. The methods and equipment of the modern and highly efficient marine fishing industry were created for motor-powered vessels. If they are to be used in conjunction with sailing vessels, considerable effort will have to be expended in adapting and changing them.

What is good for the marine fishing industry is also good for the shipping trade. At the Institute for Shipbuilding at the University of Hamburg, a ship designed in the 1960's by the German engineer Wilhelm Prolss is undergoing further development. The "dyna-ship", a large sail-powered freighter with a 15,000-ton capacity, is based on the traditional schooner design. Although only a model exists thus far, many experts already see in it the "windjammer of tomorrow".

In actual fact the 160-metre freighter is full of interesting ideas. They include the wind-slippery form, the material the vessel is made of,

its internal design and many technical details. The 30 sails on the 68-metre-high masts are set or struck according to need by a motor-driven system. The vessel's 1,000-kilowatt engine is conceived of as a purely auxiliary source of power, since the dyna-ship is able to make use of even the weakest winds. Peter Schenzle, the head of the dyna-ship project, when asked about the possibility of sailing vessels, soberly answered: "we at any rate cannot afford to leave the possibilities of wind energy unexamined. This is especially true since the chances for success are better than ever with today's achievements in materials technology, aerodynamics, meteorology and telecommunications".

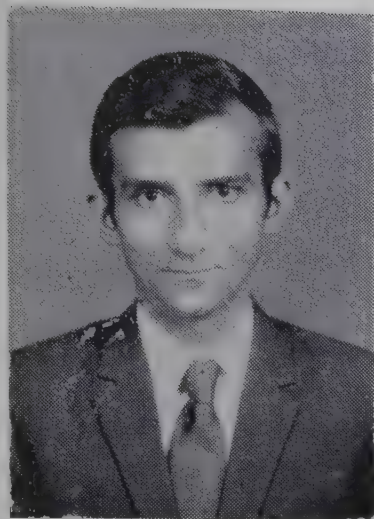
This is also the viewpoint taken by the Indonesian and German Governments. In a joint project, they are having the question investigated as to whether modern sailing ships and navigation aids can be used to create a more efficient and less expensive system of ship communications between the islands of Indonesia,

(IN-Press)





## P. K. CHAKRABORTHY



Born at Dacca, now in Bangladesh in 1940, Shri P. K. Chakraborty, Scientist-S2 had his early education in West Bengal. After graduation in Chemical Engineering from Jadavpur University, Calcutta with Food Technology as specialization in 1963, he joined the Central Institute of Fisheries Technology at Cochin in 1964 through UPSC as Asst. Research Officer and subsequently as Research Officer. He opted for Agricultural Research Service (ARS) formed by Indian Council of Agricultural Research (ICAR) in 1975. At present, he is holding the position as a Senior Scientist in the Institute.

Shri Chakraborty has done considerable original research in the development of fish processing equipment and plants for the Indian fishery industry. Among his notable contributions, mention may be made of the design of fish protein

concentrate (F.P.C.), fish peptone, edible fish powder, fish ensilage and shark liver oil pilot plants. He also developed fish cleaner, a machine for removing sand and dirt from dry fish. During subsequent years, Shri Chakraborty developed interest in fish drying technology which earned for him both National and International fame. Among his contribution in this field, it is worth mentioning the design of small scale fish meal dryer for the production of fish meal and dry prawn pulp. For the first time he showed in 1967 a demonstration model of solar dryer for hygienic dehydration of fish. He had done considerable research to find out a solution to the unhygienic method of sun-drying of fish in our country. After years of dedicated research, success and failures, he came out with an answer of drying fish by artificial means. He designed and developed tunnel dryer, multi-deck tunnel dryer and finally commercial tunnel dryer. He has helped set up several such commercial dehydration plants for the first time in the country for the production of quality dry fish which is otherwise impossible in conventional sun-drying method. Such plants are in operation at Integrated Fisheries Project (IFP) at Cochin and Veraval in Gujarat. The advantage of artificial drying of fish is that it is independent

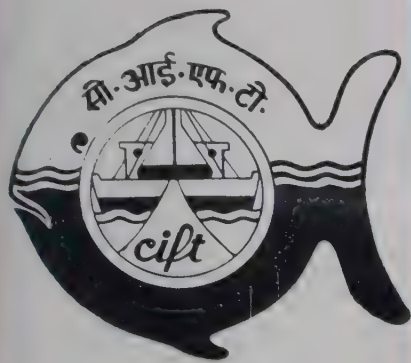
of weather conditions apart from tremendous improvement in the quality of the product and hygiene. His contribution in the field of dehydration of fish drew the attention of the Food and Agriculture Organisation (FAO) of United Nations and Shri Chakraborty was invited by FAO to present a paper on this subject in the Indo-Pacific Fisheries Council (IPFC) International Symposium held at Manila, Philippines, in March, 1978. He was again called by FAO to work as a consultant with them in the formulation of a project on fish drying under their project on Small Scale Fisheries Project in Bay of Bengal at Madras during February 1980. Apart from this, enquiries have been received from several African and Asian countries for the design of dehydration plant.

Shri Chakraborty has published nearly 25 original publications on subjects related to his work on fish processing equipment. He is a member of Indian Institute of Chemical Engineers, Institution of Engineers, Society of Fisheries Technologists (India), Indian Cryogenic Council etc. He has attended several national and international Symposia and presented papers. He is actively engaged in his field of research and takes part in rendering technical services in setting up small scale fishery industry.









# Fish Technology newsletter

Vol. II

No. 12

APRIL-JUNE 1981



Summer Institute on Non-Traditional Diversified Fish Products & By  
Products: Trainees engaged in the Production of Fish Fingers.

**CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY**  
MATSYAPURI P. O.

COCHIN - 682 029

## CONTENTS

	Page
1. Foreword	3
2. Summer Institute on Fish Processing	4
3. Guidelines for a Better Environment	5
4. Stages in Fish Marketing	6
5. A Survey on the Under utilization of Fish processing plants in India	8
6. Fishing Craft and Gear Technology	10
7. Let's Talk it Over	11
8. Obituary	11
9. Gleanings from Other Journals	12
10. CIFT Appointment, Promotion, Transfer etc.	13
11. Doctorate Awarded	13
12. Meet Our Scientists	14



# Foreword



## EDITORIAL COMMITTEE

Shri BALASUBRAMANYAN  
*Chairman*

Shri K. C. PURUSHOTHAMAN  
*Secretary*

Shri P. MADHAVAN  
*Member*

Dr. P. N. KAUL  
*Member*

*Photography* Shri K. BHASKARAN

*Art* Shri G. MOHANAN

*Abbreviation: Fishtech News*

Fish Technology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Editorial Committee.

# Summer Institute on Fish Processing

A month long Summer Institute on Non Traditional Diversified Fish Products and By-products being conducted at the Central Institute of Fisheries Technology (CIFT), Cochin ended on May 26, 1981.

Sponsored by the Indian Council of Agricultural Research (ICAR), this was one of the 21 such Summer Institutes on various subjects being organised in different centres of the country this year.

The aim of the Institute was to communicate the latest technological advances in the subject and provide the necessary orientation to the teachers, research scientists and extension workers in non traditional diversified fish products.



Shri. S. N. Rao (extreme left), Director, Marine Products Export Development Authority, Cochin, inaugurates the Summer Institute. Next to him are Dr. C. T. Samuel, Dean of Science and Head of the Department of Industrial Fisheries, University of Cochin, Dr. Reghu Prasad, Assistant Director General of ICAR and Shri M. R. Nair, Director of the Summer Institute.



Dr. K. I. Vasu (centre) Pro-Vice Chancellor, University of Cochin, addressing in the valedictory function. To his right is Shri Devidasa Menon, Former Director of Integrated Fisheries Project, Cochin.

There were 20 participants selected from different State Fisheries Departments, Corporations, Fisheries Colleges, ICAR Institutes, Marine Products Export Development Authority, Food Craft Institute, Universities etc. Besides lectures, demonstrations and group discussions, field trips were also arranged for the benefit of the participants. Particular emphasis was laid on the practical training in the preparation of fish protein concentrates, fish hydrolysates, paste fishery products, fish soups, fish wafers, chitosan, shark-fin-rays pickling and canning of clams and mussels.

(Continued on page 7)



# Guidelines for a Better Environment

Conserve our natural resources by using less of everything, including electricity, gas, oil, paper, and water.

Purchase liquids in reusable, returnable bottles whenever possible, save aluminium cans and returnable bottles and bring them to recycling centers.

Use soap or low-phosphate detergents (some are now being made without any phosphates). These compounds break down quickly and do not pollute our rivers and lakes.

Instead of burning leaves or grass-cuttings make compost heap. (You can add all vegetable refuse from the kitchen too). The decaying matter provides good fertilizer.

If your family owns a car, the use of lead-free gas and emission controls will reduce air pollution from exhaust fumes. Make sure that the engine is not left idling: the worst emission problems occur at such times.

Walk, ride bicycles, and use mass transit more often.

Find out what your city or town is doing about waste disposal in both air, and water. Complain to your local authorities about dirty or noxious smoke emissions from factories or houses; and illegal burning of trash in back yards.

Check to find out how your own representatives have voted on conservation legislation. Let them know how you feel (they do read their mail), even though you are not of voting age.

Join local and national conservation groups. They need your support, and they can give you detailed information on products to use and centers for recycling. The National Audubon Society and some others also have junior divisions.

Use no pesticides unless absolutely necessary, and then only those containing the least harmful chemicals such as pyrethrin, methoxychlor, and the carbamates. DO NOT USE chlorinated hydrocarbon pesticides, including DDT, DDD, endrin, dieldrin and toxaphene. Remember, the cost of spraying these

long-lasting poisons is not merely what you pay for a product, but also the death of wildlife and the decline of our fish-food supply.

Boycott stores that sell furs, skins or other products from wild animals. Buy only furs that come from ranch-bred animals, such as mink or rabbit or nutria. When we lose a wild species, there is no replacement.

Everything we do has a total cost, not just in manufacturing a product, but also in what that manufacturing process does to the environment; not just in killing an animal, but in what happens to the environment after that species is gone. The manufacturer is not the villain. People create pollution and extinction by the things they want. Only people can restore the earth to a state which can continue to sustain life. And because *you are people*. it's up to you.



---

(Issued by the Publicity and Liaison Branch F. R. I. and Colleges, Dehra Dun)

# Stages in Fish Marketing\*

Fishes are landed at the shore by many fishermen who are on the fish catching business. Marketing of this catch is generally done at the shore itself. The method followed is by general auction. In spite of the many co-operatives set forth, the product is marketed through the middlemen bringing in the major disparity of the price.

On one side the fishermen risk their lives out at sea and bring the product but get a less price for the effort. But, on the other side, the consumers grumble over the increasing prices for this delicacy especially at the inlands. Hence, to understand this situation of disparity a preliminary investigation was undertaken to have an insight into the fish marketing procedure from the fishermen to consumers. As per the observation, four stages were found to explain the above inference.

## 1st Stage

Fishes are landed at sea coast by fishermen. Majority of the fishermen sell the fish at the landing site itself. Lot of people would be found involved in this business. The purchasers at the landing site wait for the fish with money. Just as the boats arrive, a

quick evaluation of the quantity, quality and further marketing prospects will be done by the purchasers. Based on their evaluation the prices are arrived at over a discussion with the party. Some middlemen, in the form of brokers to the business who are known to the boat owners also mediate to bring about a quick settlement. Hence, at this stage the fish is generally marketed on the spot to the curers. If the quantity is too large it will be sold on a measure of baskets for an amount arrived at mutually.

## 2nd Stage

These curers, after purchasing the fish, cure it and wait for market, which is obtained easily during season. The curing procedure may be either dry or wet salt curing. In this stage the local curers through the agents contact the wholesale traders. They market the fish at the curing site itself.

## 3rd Stage

The whole-sale traders are the main transporters of fish to different parts of the country. They collect the fish from the local curers and transport them by lorries. Generally the fish is maintained on ice for long journey transport. After the transport,

the fish is again sold to retailers in the other area.

## 4th Stage

The last stage of fish marketing is from retailers to the actual consumers in different parts of the country.

Overall, it could be inferred that there are four main stages in marketing of fish. It is needless to emphasize the fact that at each step the maintenance cost, transport cost and the profit margin would increase thereby hiking the product at the level of the consumers. Ultimately it is the consumers who pay the increased price to the product, but at the same time fishermen are found to make a subsistence living. The major profit share is engulfed by the middlemen and traders.

The basic factor resulting in this pattern of marketing is the spot selling of fish at the landing site by the fishermen. This is due to their inability to meet the consumption needs without marketing the fish. Apart from this they are also found to be indebted, hence finding it difficult to come out of the vicious cycle.

At this juncture two aspects could be of much importance. First would be to provide

\*Written by Shri G. R. Desai and Dr. P. N. Kaul of CIFT, Cochin



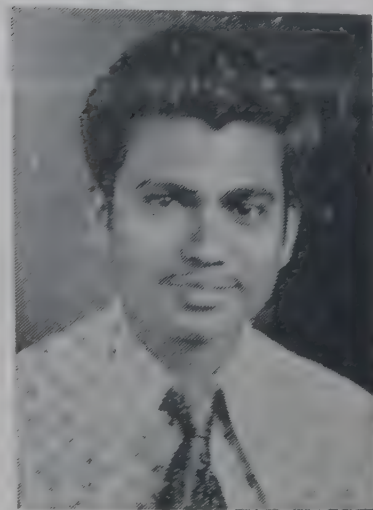
the credit facility keeping in view the vocation. The second aspect would be to educate them to cure the fish themselves in an improved way. This could be done through extension education. This action would help them to get a better price, build in the bargaining ability and improve their living conditions.

The other approaches which could be supplemented would be to have regulated

markets for fish independently. Also, co-operatives could be strengthened to take up the marketing function, thereby helping to get the fish marketed.

It is high time that approaches to better the lot of traditional fishermen should be planned and put to use before this section of the population migrates to an indifferent profession or place.

#### EYES AND BODY OFFERED



Shri P. Gopalakrishnan (32), an employee of CIFT, has declared to donate his eyes and body to the needy after his death.

□

(Continued from page 4)

Shri Devidas Menon, former Director of Integrated Fisheries Project, Cochin, made the valedictory address.

Presiding over the function, Dr. K. I. Vasu, Pro-Vice-Chancellor of Cochin University, asked the participants to make use of the in-service training they received for furthering the progress of Fisheries Technological Research in their respective States/Universities.

Shri M. R. Nair, Director of the Summer Institute, welcomed the gathering and Shri P. Madhavan, Scientist, expressed the vote of thanks.

□



Trainees with Scientists of CIFT

# A Survey on the Under utilization of Fish processing plants in India\*

## I. KERALA

The marine products export from India has shown a remarkable increase since 1969. In 1969, the total export earning from marine products was Rs. 330.7 million and in 1979 this rose to Rs. 2620.3 million. Out of these, the share of frozen marine products alone was worked out to be 86.5% in 1969 and 94.9% in 1979. The flourishing trend in the fish processing industry over the years attracted many new entrepreneurs in this lucrative trade and as a result, the number of frozen seafood processors have increased considerably in the last decade. Also step like expansion of the installed capacity of fish processing plants was noticed during this period. As the fish processing plants mainly depend on prawns, which is seasonal, there is reason to suspect that at present there exists considerable excess capacity in the fish processing plants. Since large unutilised capacity of plants is not at all desirable for economic func-

tioning of any industry, the Scientists in the Statistics section of the CIFT have undertaken a survey during 1980, with the objectives of investigating the extent of idle capacity existing at present in the fish processing plants in India, the factors leading to their underutilisation, and the desired size of the plants in different maritime states of India depending upon the availability of raw material and other processing infrastructure. The chief findings the survey for Kerala State are furnished in this article.

Kerala is the pioneer state which started export of frozen prawns from India. Kerala has a coast line of about 560 Km with rich prawn grounds in the inshore and offshore areas of it. Many fish processing plants sprang up in this state; at first they

were located in Cochin but gradually extended to other parts of the state depending upon the availability of raw material. Out of a total of about 270 fish processing plants in India during 1979, 104 were located in Kerala. This accounts to 38.5% of the fish processing plants in the whole of India and 57.7% of the plants in the west coast of India. Of the 104 plants in Kerala, 69 were under 5 tonnes capacity, 19 were between 5-10 tonnes capacity and 15 were over 10 tonnes capacity per day. Out of 104 plants, 16 plants (15% of the total) were selected for the study as per the stratified random sampling procedure. Data on the installed capacity, actual production, factors leading to the underutilisation of plants, number of personnel employed, sources of getting raw material and ice and cold storage facilities in the plants were collected for 1978 and 1979 by interviewing the plant managers. The idle capacity was

---

★Prepared by: H. Krishna Iyer, P. Srinivasa Rao, G. R. Unnithan, A. K. Kesavan Nair and R. G. Nair



estimated from the difference between the installed capacity of the plants and the actual production during the years 1978 and 1979 for 200 and 250 working days in a year and for single, double and triple shifts a day.

The estimates of the percentage idle capacity worked out for each strata (under 5, 5-10, above 10 tonnes/day) for the years 1978 and 1979 for 250 working days per year are given in the Table. It is

clear from the Table that there existed considerable unutilised capacity of fish processing plants in Kerala. In single shift the percentage idle capacity is less but as the number of shifts increased, the extent of idle capacity also increased. Among different strata, plants of 5 to 10 tonnes installed capacity per day was found to be having comparatively less idle capacity in all the three shifts. If the sizes of plants are less than 5 tonnes or more than 10 tonnes/day, the percentage idle capacity increases. The

investigation shows that the small plants (under 5 tonnes/day) were not economically sound enough to compete with others for procuring raw material at very high price resulting in the high percentage idle capacity whereas in the case of big plants (above 10 tonnes/day) it is the scarcity of raw material that caused underutilisation. The percentage error of estimation of the idle capacity for the state as a whole ranged between 6.3 and 21.6 for the three shifts.

**Table: Idle Capacity of the Fish Processing Plants in Kerala  
for 1978 and 1979**

(BASED ON 250 WORKING DAYS IN A YEAR)

	Single Shift 1978	Single Shift 1979	Double Shift 1978	Double Shift 1979	Triple Shift 1978	Triple Shift 1979
Total estimated installed Capacity (in tonnes)	56,070	56,070	1,12,140	1,12,140	1,68,209	1,68,209
Total estimated Idle Capacity (in tonnes)	28,560	26,904	84,009	82,994	1,39,440	1,39,065
% Idle Capacity	50.94	47.98	74.91	74.01	82.90	82.67
% Error of estimates	21.62	21.57	8.70	8.65	6.30	6.26
<b>% IDLE CAPACITY STRATUM - WISE</b>						
Under 5 tonnes/day	50.85	37.01	74.11	68.58	81.84	79.06
5 to 10 tonnes/day	9.46	20.90	54.74	60.40	69.82	73.60
Above 10 tonnes/day	80.42	80.80	90.21	90.40	93.47	93.60

# Fishing Craft and Gear Technology

The following working papers and allied newsletters published by the Bay of Bengal programme of the F.A.O./SIDA at Madras are a source of useful guidance.

## WORKING PAPERS (BOBP/WP)

1. Investment Reduction and Increase in Service life of Kattumaran Logs.  
R. Balan. Madras, India, February 1980
2. Inventory of Kattumarans and their Fishing Gear in Andhra Pradesh and Tamil Nadu.  
T. R. Menon. Madras, India, October 1980
3. Improvement of large-Mesh Driftnets for Small-Scale Fisheries in Sri Lanka  
G. Pajot. Madras, India, June 1980
4. Inboard Motorisation of

small G.R.P. Boats in Sri Lanka

Madras, India, September 1980

5. Improvement of Large-Mesh Driftnets for Small Scale Fisheries in Bangladesh.  
G. Pajot. Madras, India September 1980
6. Fishing Trials with Bottom-Set Longlines in Sri Lanka  
G. Pajot, K. T. Weerasooriya. Madras, India, September 1980
7. Technical Trials of Beachcraft Prototypes in India  
Gulbrandsen, G. P. Gowing, R. Ravikumar. Madras, India, October 1980
8. Current Knowledge of Fisheries Resources in the Shelf Area of the Bay of Bengal.  
B. T. Antony Raja. Mad-

ras, India, September 1980

9. Boatbuilding Materials for Small-Scale Fisheries in India, Madras, India, October 1980
10. Fishing Trials with High-Opening Bottom Trawls in Tamil Nadu, India  
G. Pajot John Crockett Madras, India, October 1980

## MISCELLANEOUS PAPERS (BOBP/MIS)

- 11 - Fishermen's Co-operatives in Kerala: A Critique  
John Kurien. Madras, India, October 1980

## NEWSLETTERS:

12. Bay of Bengal News, January 1981
13. Bay of Bengal News, May 1981

The major causes behind the idle capacity of fish processing plants in Kerala are;

- i) Non-availability of raw material (prawn)
- ii) High cost of production
- iii) Labour troubles
- iv) Frequent power failures
- v) Unsteady foreign market and

vi) Competition among processors in procuring the raw material.

The following are few recommendations which may help to reduce the idle capacity of plants in Kerala.

- i) Diversification of products
- ii) Mass aquaculture of prawns to meet shortage of

raw material

- iii) Abolition of purchase tax while procuring the raw material
- iv) Improvement of shipping facilities
- v) Restriction of new entrepreneurs in the field
- vi) Liberalisation of aids from banks to small processors



# Let's Talk it Over

## M/s. Orient Marine Products (P) Ltd., Madras

We are interested in freezing of sea foods, especially Frog-legs, by carbon dioxide. Would you please enlighten us in the matter?

CIFT: We have not developed any method for freezing sea food by carbondioxide. Nor do we know any party adopting this method at present. However, literature on freezing by carbondioxide are available. Please refer to pages 70 to 73 of the book, Fundamentals of Food Freezing by Norman W. Desrosier and Donald K. Tresseler, published by AVI Publishing Company, INC, West Port, Connecticut.

## Asst. Director of Fisheries, Malpe, Karnataka

We would like to know whether

CIFT has evolved any formula for the production of improved quality feeds for inland reservoir fishes.

CIFT: One of the fish feed formula developed by this Institute has been found to be very efficient in the case of inland fishes. The formula of the feed is:

- |                               |       |
|-------------------------------|-------|
| 1) Tapioca starch             | 50.0% |
| 2) Ground nut cake            | 17.0% |
| 3) Fish meal (55-60 Proteins) | 33.0% |

The ingredients are to be ground fine powder. Starch is gelatinised with hot water (90°C) and the other ingredients are mixed well with the gelatinised starch, pressed to pellets of required size and shapes and dried to moisture content below 5.0%. This can be stored in gunny bags without deterioration for at least six months.

## M/s. Sea and Sand Enterprises, Sakthikulangara, Quilon

What is the production technology of breaded prawns?

CIFT: Peeled and deveined prawns, individually, are first treated with a batter (liquid solution containing egg, starch spices etc) and then coated with a breading mixture (bread powder, starch, spices etc) and fried in vegetable oil like palm oil, soya oil etc. for 3 to 6 minutes until the surface is fried well to obtain an yellow to brown colour. The fried breaded prawns are then frozen and packed. It is kept in frozen storage and sold in frozen condition. The consumers have to fry them well prior to consuming.

## OBITUARY



Shri Korah Eapen (35) Scientist S1, died of sudden illness at Cochin on January 23, 1981.

Shri Eapen joined CIFT in 1975 as Assistant Fishery Scientist of Processing and

Process Engineering. Later he was inducted to Agricultural Research Service as scientist-S1. He was working on developing machineries and equipment for modernizing fish processing. He is survived by his wife.

# Gleanings from Other Journals

## 10,000 houses for Fishermen

The Kerala Fishermen's Welfare Corporation proposes to finance the building of 10,000 houses for fishermen this year.

Under the scheme, an aid of Rs. 4,000- half of it as grant and the other half as loan- will be given in three instalments as the work makes progress.

On completion of house with floor area of 21 square metres an additional loan of Rs. 1,000 will be sanctioned for building a store room.

Of Rs. 5 crores needed by the Corporation for the scheme Rs. 3 crores will be obtained from the State Government and the rest from HUDCO. The amount obtained from the State Government will be utilised for giving loans for building store rooms and grants, whereas the amount from HUDCO would be distributed as loans.

## Marine container unit at Cochin opened.

Union petroleum and chemicals minister P. C. Sethi today formally commissioned a marine freight container plant at Aroor, 20 km south of Cochin, the first public sector container enterprise set up by the state owned Balmer Lawrie and Company.

- Economic Times -

## Tax Concession to boost deepsea fishing

The Fishing industry is likely to be given concessional excise duty on diesel tax concessions and other incentives as part of a Government bid to attract investment to deepsea fishing operations.

The Union Minister of State for Agriculture Mr. R. V. Swaminathan at the annual meeting of the Association of Indian Fishery industries regretted that the response to the policy measures to promote deepsea fishing had been poor.

The Ministry of Agriculture was thinking of granting some concession on excise duty on diesel he said while rejecting the demand for a support price for catches from deep sea.

## Lag in growth in last three years:

Mr. N. P. Singh, President of the Association said fish production in India had grown three-fold in the first 30 years after Independence but had been static in the last three years. Of the total catch of 23 million tonnes, marine catches accounted for 1.5 million tonnes.

The number of mechanised vessels rose from 2,000 in 1960 to over 16,000 in 1977. Since then, however, there had been hardly any growth either in the number of mecha-

nised vessels or in marine catches.

- Hindu -

## Fishing Vessel Project by FAO

A crash project to speed up the development of suitable vessels for small scale fisheries in India and Sri Lanka has been undertaken in Madras by the Food Agricultural Organisation (FAO) and Swedish International Development Authority (SIDA) under their six million dollar Bay of Bengal Programme (BOBP).

Nearly a dozen experimental boats are being built at the Rayapuram boatyard here of the Tamil Nadu Fisheries Development Corporation (TNFDC), following an agreement between BOBP and the corporation early this year. These include one boat for Sri Lanka, eight boats for Tamil Nadu and Andhra Pradesh and two for Kerala according to a BOBP spokesman.

The main feature of most of these boats is that they are motorised, yet "beachable" capable of landing on the beach without expensive harbour facilities. Some of the designs are based on the India east coast prototype boats, surf-tested last year by BOBP Ennore, north of Madras, while the Sri Lanka boat would test new ideas. Two non-motorised craft (sail boats) are also being built.

- Economic Times -



# CIFT Appointment, Promotion, Transfer etc.

## APPOINTMENTS:

S/Shri Premlal Panda, Surjananda Dishri, Godabari Mahanandia joint Burla Research Centre as Supporting staff Grade-I

S/Shri Stanislas Kiro and Baikuntha Pradan joined Burla Research Centre as Technician II-3 (Technical Assistant)

S/Shri A. B. Varghese and A. A. Kunjappan joined as T-2 and T-1 respectively at Head quarters

Shri Dibyalochan Pattanaik joined Burla Research Centre as S. S. Grade I.

Shri B. Prakash joined as Technician-I (Junior Lab Assistant) at Head quarters

Shri N. Shriharshan joined as Technician-5 (Engineer) at Head quarters.

Shri K. K. Narayanan joined as Technician-I (Boilerman) at Head quarters.

Shri N. Venkata Rao joined as Technician I (Field Assistant) at Kakinada Research Centre.

## PROMOTION

S/Shri P. D. George, K. B. Bhaskaran, Kirtan Kisan, G. Chinna Rao and Orilika Heman, SSG-I to S. S. Grade II

Shri G. L. Tandel A. S. Grade I to Technician-I at Veraval Research Centre

Shri O. C. Lonan, S. S. Grade III to S. S. Grade IV at Head quarters.

## REVERSION

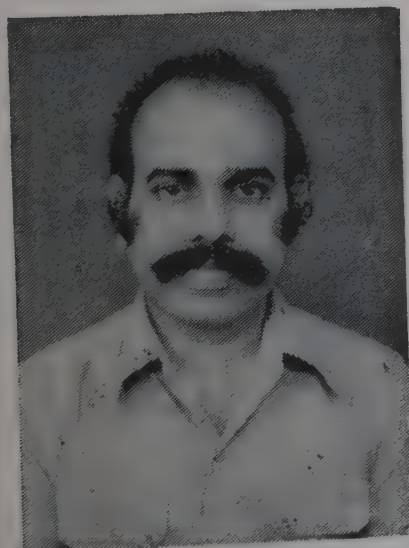
Shri Veer Singh, Senior Clerk, Burla Research Centre, to Junior Clerk at Veraval Research Centre.

Shri O. K. Xavier, Technician -I, Bombay Research Centre, to S. S. Grade I at Head quarters.

## TRANSFERS

Shri C. K. Muraleedharan Junior Clerk, Head quarters, to ICAR Research Complex, Tharnapani as Senior Clerk.

Shri K. Gopalakrishnan, Scientist SI Veraval Research Centre to Exploratory Fisheries Project Bombay as Deputy Director.



## Doctorate Awarded

The University of Kerala has awarded Ph. D. Degree in the faculty of Science to Shri P. K. Surendran, Scientist S1 Microbiology division, CIFT Cochin for his thesis entitled "Chemical Preservatives in Relation to Control of Micro-

bial changes in Fishery Products". Shri. Surendran conducted his research in the Microbiology laboratory of CIFT, Cochin, under the guidance of Dr. K. Gopakumar, Head of the Processing Division of CIFT.

### M. K. KANDORAN



Shri. M. K. Kandoran is working as Scientist-S2 in the Extension, Information and Statistics Division of CIFT, Cochin.

Born in 1938, he passed M. Sc (Applied Chemistry) with Ist Class from Maharaja's College, Ernakulam. In 1962 he joined the Calicut Research Centre of CIFT. During his service at Calicut Centre, he developed a new technique for removal of urea from shark flesh, which, inspite of its high nutritional value, is not relished by many fish consumers on account of its high urea content. Studying various properties

of existing packaging materials, he suggested a proper method for packing cured fish.

Shri. Kandoran was later transferred to Veraval Research Centre of CIFT in 1966 and served there till 1969. During this period he developed an improved method for preparation of laminated Bombay Duck which is popular in international markets. Processes for canning smoked eel fillets, pomfrets and hilsa were developed by Shri Kandoran. He has also made substantial contribution in the formulation of methods for irradiation of commercially important fishes, smoking of eel fillets and preparation and utilisation of shark liver oil residue.

Since 1970 Shri Kandoran has been serving in the Extension, Information and Statistics Division of CIFT at Cochin. He is in charge of extension training programmes of the Institute. He has organised training courses on various aspects of fishery technology in Kerala, Karnataka,

Maharashtra, Gujarat, Tamilnadu, Andhra Pradesh, Orissa and West Bengal for the benefit of the fishermen and fishery industry. He has been actively engaged in the Lab-to-Land programmes of CIFT. These programmes have resulted in the improvement of hygienic condition of fish processing plants, production of high quality processed fishery products for export and establishment of new industries on fabrication of modern fishing gear by fisherwomen and production of clam meat pickle, mussel meat pickle, prawn/fish pickle and prawn/fish wafers.

Being a Scientist in Extension Division, Shri Kandoran is maintaining a good liaison with the public in general and fishery industry in particular. He has brought out thirty one scientific and technical publications including compilation of a text book titled "Quality Control in Fish Processing".



## CIFT is at your Service

*It transfers Fishery Technology by way of:*

- ◆ Demonstrations of Fishing and Fish Processing techniques envolved by it
- ◆ Answering Technical queries
- ◆ Supplying project reports and design drawings
- ◆ Training courses of fishing and fish processing

*Please contact:*

Director,  
C. I. F. T.,  
Matsyapuri P. O.,  
Cochin - 682 029















